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ABSTRACT

One reason given for the failure of the large-scale efforts in the decade 1955-1965 to increase significantly the rate of economic and technological growth in the "developing" countries of the world has been insufficient utilization of existing information essential to this development. Motivated by this belief and the opinion that this non-usage of existing intellectual resources is due to the lack of adequate documentation services, both in the developing countries and in the subject area of development information, the Symposium on Documentation Planning in Developing Countries convened to study this problem. Papers were presented on the following topics: "The Role of the Institutions of Developing Countries in the Planning, Organization and Development of Documentation"; "National Library and National Bibliography"; "Library Development in Nigeria"; "Documentation Centres at Scientific Institutions in Developing Countries"; "Agriculture, Research and Development Institutes, Associations"; "Policy Planning for Technical Information in Industry"; "Training of Documentalists in Developing Countries"; "The Problems of Documentation in Developing Countries"; "The Role of the State and of the Government Agencies in Developing Countries"; and "The Role of a National Information Clearinghouse for Development Aid". On the basis of the papers presented and ensuing discussions twelve recommendations were made. (JN)

German Foundation for Developing Countries

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Preface

In spite of massive measures undertaken by developing countries to improve the standard of living of their peoples, the First Development Decade has not brought satisfactory results. This failure does not lie exclusively in the insufficiency of capital, materials and personnel provided by the industrialized nations. On the contrary, it is due in large part to the fact that little use is made of that existing knowledge and know-how which is decisive for modern development processes. We have not succeeded in making rapidly available for use the findings, data and facts provided by scientists, academics, politicians, and governmental and non-governmental institutions as contained in books, reports, articles, research studies and other publications. It has been estimated that because of this lack of information communication, roughly $ 1 millard of development aid funds are wasted each year.

This alarming situation, together with the realization that the flood of publications—in particular reports in the field of research and development—has assumed tremendous proportions, evidences the fact that we are in the midst of an information crisis. This was foreseen by a number of national, foreign, and international organizations at the beginning of the First Development Decade. In clear awareness of the situation, the German Foundation for Developing Countries has, from its founding in 1959 on, taken care to build up a coordinating documentation machinery which would provide rapid and easy access to required facts and data in the field of development aid.

In view of the differing German and international documentation and information centres and agencies in existence, it has been necessary to proceed flexibly the creation of a uniform communication system. With great patience and growing understanding on the part of all those participating in this development, it has been possible to arrive at practical solutions at both national and international level.

However, an international comparison of industrial nations revealed strong divergences in the organization of structure of the various national documentation and library services. A comparison between industrialized and developing countries brought even greater divergences in this field to light.

The suggestions made by the two Vice-Presidents of the International Federation for Documentation (FID), Professor Dr. H. Arntz, President of the German Society for Documentation, and Dr. Péter Lázár, Director and Chairman of the FID/DC (Committee for Developing Countries), that with the assistance of the German Foundation for Developing Countries this Symposium be organized met with great interest. The timing of the Symposium could not have been more favourable, since on the one hand concrete suggestions and results could be brought forward and on the other hand those institutions which had not yet completely established their organizational structure could be given advice in solving their various problems. Drawing on the excellent papers presented and on the lively discussions, the Symposium drew up twelve recommendations which were then forwarded to the competent bodies.

We regret very much the delay in the publication of this report. This delay was due to personnel changes in the direction of FID/DC and the heavy burden of work of the Central Documentation Centre of the German Foundation. In this connection we should like to inform you that in continuation of this Symposium the German Foundation for Developing Countries, in close cooperation with OECD and ICVA (International Council for Voluntary Agencies), held an International Conference on Development Information Clearing Houses at the German Foundation for Developing Countries in Berlin from 1 to 6 November 1969.

Dr. Gerhard Fritz
Director General
German Foundation for Developing Countries

Introduction

Objectives of the Symposium

Many international organizations and conferences have already investigated the problems of documentation in developing countries in order to disclose the ways and means by which developed countries may render assistance to developing countries in the establishment and development of documentation services and in the utilization of documentation.

The objectives of the Symposium were to investigate the problems related to planning of documentation especially from the point of view of the planning of the activities and the organization of documentation centres and other related services both on the national level and on the level of the individual organizations. Emphasis was laid upon the tasks and the responsibilities of various types of institutions in the most important sectors of economy and culture of the developing countries themselves.

Participants

The participants of the Symposium were members and observers of the Committee for Developing Countries of the International Federation for Documentation (FID/DC) and invited experts representing institutions and organization dealing with problems of documentation in developing countries, altogether 32 persons.

Programme

The Symposium was held with the financial assistance of the German Foundation for Developing Countries and the German Society for Documentation in the Conference Room of the

Parkhotel. Working languages were English, French and German, with simultaneous interpretation.

Dr. Gerhard Fritz, Director General of the German Foundation for Developing Countries, attended some of the meetings.

The programme of the Symposium was constantly revised, and the recommendations based upon the discussions were drafted by the Steering Committee, consisting of the following members:

Prof. Dr. H. Arntz, Dr. S. Balázs, Miss G. Blanck,
Dr. D. Danckwortt, Mr. G. Hammer, Dr. P. Lázár,
Baron E.-J. von Ledebur, Dr. O. von Schott.

Dr. Erika Wolf, member of Parliament and member of the Board of Trustees of the German Foundation for Developing Countries gave a reception for the participants of the Symposium and representatives of various German governmental and press agencies.

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The Role of the Institutions of Developing Countries in the Planning, Organization and Development of Documentation

S. Balázs

1. 75 per cent of the world's population lives in regions which may be classified as developing. The per capita Gross National Product of the developing countries came to not more than $ 160 in 1965, less than one tenth of the per capita GNP of the developed countries, which amounted to $ 1,950. The GNP of the USA surpassed $ 3000 per capita in 1966. The $ 160 average includes the oil-rich countries and the higher incomes of the more prosperous urban sectors of the various developing countries with their administrative, commercial and foreign elements. The annual per capita income of the rural masses is probably not much more then one third of the overall average of $ 160 annually.

In the UN Secretary General's Report (Doc. E/3395) the geographical criterion of developing countries includes all countries and territories in Africa and Asia with the exception of the Union of South Africa and Japan.

2. The qualification "underdeveloped" or "developing" is attributed to some types of countries according to economic criteria. The term itself is delicate, elastic and relative, certainly in United Nations practice it is used to describe solely a material state. It is evident, however, that people who live in poor areas of the world may possess high spiritual and ancient cultural values. There may be an apparent contradiction between cultural development and economic underdevelopment.

3. "Developing," "development"—these terms concern not only man's material needs but also the improvement of the social conditions of his life and his broad human aspirations. In this sense development for developing countries is not just economic growth, it is growth plus change.

The developing countries are now in the position to be able to make use of the vast quantity of information accumulated and available throughout the world in every field involved in economic and social development.

The immense potential of past experience and scientific and technological knowledge provides a suitable basis for the quick progress of developing countries. This process of utilizing existing knowledge is by far not an automatic one, on the contrary, many concentrated actions are necessary on part of both the developing and the developed countries in order to realize this potential in practice.

4. On 19 December 1961 the General Assembly of the United Nations designated the current decade as the United Nations Development Decade "in which Member States and their peoples will intensify their efforts to mobilize and to sustain support for the measures required on the part on both the developed and developing countries to accelerate progress towards self-sustaining growth of the economy of the individual nations and their social advancement." The main economic objective for the Development Decade is to create conditions in which the minimum annual growth rate of the Gross National Product of the developing countries will reach 5 per cent by 1970; in the same time the total of trained people in the developing countries should increase by at least 10 per cent annually.

5. In order to achieve the development target provided, the United Nations intensified its efforts initiated at the start of the Development Decade by aiding countries to plan the development within the framework of general and balanced economic and social development, to expand their educational systems in accordance with agreed quantitative targets, to improve the efficiency of their educational

systems, and to establish the teaching and research institutions and create the cadres of higher level manpower required both for their technological and their social progress.

The area for action taken by the UN organizations can be conceived in three stages:

- help in obtaining information for planning, in the establishment of planning machinery and in methods of planning;
- help in formulation of the plan;
- assistance in implementing the plan.

In every respect planning is a very important factor of development.

6. Unfortunately the appealing objectives defined by the UN Development Decade have not been yet fully realized. The Gross National Product of the developing countries has annually increased during both the overlapping decades 1950-1960 and 1955-1965 by the same rate; that is shown by the corresponding annual growth rate of 4% for the Asian and 5% for the Latin American developing countries. The developed countries, on the contrary, quickened the pace of economic development, raising the annual rate of growth of the Gross National Product from 4% in the decade 1950-1960, to 4.2% in the decade 1955-1965. The gap between the developing and the developed countries is thus constantly broadening.

Among the reasons for the failure in the growth rate of economic development the lack of adequate information and documentation resources and services may be quoted. This is partly due to subjective causes, as many potential users of documentation are fully or partially unconscious of the

good services of documentation. But in most cases the proper information and documentation channels are lacking, thus hindering the transfer of the right bit of information at the right moment to the right place and the interested user.

7. Various organizations and institutions have long been stressing the necessity of planning, creating and developing a country's library system on a national scale. No doubt the national documentation and information system also needs careful planning, and its operation should be coordinated with the activities of the libraries.

This is not a new idea. The famous Tauber report and many other similar documents explicitly stated that national development in the scientific industrial, and educational fields is very much a function of effective library and documentation services.

This information system must work like a complicated irrigation system which is continually fed from many sources and in which the individual plants to be served with water (the users) depend on what reaches them at any given time. Ideally, each plant should receive just the right quantity of water at the right time. However, in practice, owing to the sluggishness and irregularity of the system, some of the water discharged from the system never reaches the plants in time, and much of it evaporates or runs into the soil on its ways. At other times the flow of water is so abundant that the plants are waterlogged and cannot absorb what they need. The same phenomena may be encountered within information and documentation.

Very circumspect and far-sighted planning is therefore necessary in the field of documentation and information in order to coordinate the elements of economic progress of the

developing country with the stages in the development of documentation indispensable to the former.

8. The initiative, direction and financing of economic and social development in the developing countries is, evidently, the responsibility of the government.

The planning of the organization and the development of the national economy, science and culture is admittedly a most important function of the state, as exemplified by so many advanced and developing countries. Let us remember the various state agencies directing national planning and scientific research; in most developing countries these have been established during the past five to ten years.

Since information—either disseminated by libraries or by documentation centres—is intimately linked with the national achievements in science, technology, economics and other fields, its planning also constitutes a central task and, as such, comes under the responsibility of the governments.

9. In order to develop and advance the planning and control activities of the state in the developing countries, it is indispensable to establish a national documentation centre invested with three basic functions: a) to collect, process, store and disseminate information necessary for the development of the country, i.e. to provide for documentation services proper; b) to organize, coordinate and control documentation in the country, acting as a national organizing and coordinating centre; c) to develop into a methodological and research centre of documentation in the country.

At least 12 national documentation centres have so far been established with the aid and collaboration of UNESCO in developing countries with the objective of helping to accelerate the scientific, economic and industrial progress of the country.

10. The national documentation centres established with UNESCO support widely differ from one another. Some of them were organized without reference to existing bibliographical resources in the country and without any concern for their coordination, control or national use. This prevents their work from being completely effective and leads to duplication of efforts in acquisitions, processing and disseminating of information. To avoid unnecessary confusion, the function of such national centres to be established in the future and especially their relationship with other documentation centres, univerity and special libraries, should be clearly defined.

In order to cope with the difficulties in acquiring documents, to bridge large distances and to achieve the adequate diffusion of documents it is important to set up a central reprographic department which can readily, flexibly and economically supply copies of originals to the specialists in the developing countries. The reprographic department should be, at the same time, suitable for copying and for printing the output of the documentation services of the national documentation centre.

A central office for translation and a central register of translations and translators is to be organized within the national documentation centre covering the translations done or available in the country. Most developing countries use one of the major languages of the world, yet this involves the danger of getting somewhat biased information. In addition to this, in order to overcome existing language

difficulties, it is or is becoming more and more necessary to translate literatur into indigenous languages.

The national documentation centre should be entrusted with the authority and with the legal and financial means necessary to investigate, organize, and develop the national documentation system, including the integration and coordination of documentation activities pursued in various institutions.

11. Science has attained an honoured place in the newly emerging developing countries. Scientific research has been promoted enthusiastically for the sake of the rapid economic development of the country.

During the past decade or so most developing countries have shown increasing awareness of the need for creating national organizations for research and development as quickly as possible so as to be in an independent position to solve their own scientific problems.

Documentation should be placed at the service of the two basic types of research:

a) fundamental research conducted chiefly in universities
b) applied research conducted chiefly in research institutes and laboratories, institutes in the field of agriculture, industry, health, etc.

It should be stressed that universities are not solely educational institutions but are also centres for research and for organization of knowledge. This function seems to be even much more important in developing countries than in advanced countries. A necessary prerequisite for any research is an effective library and documentation system, since the knowledge of today is the tomorrow's research.

12. In the various economic sectors (industry, agriculture, etc.) an important task of the developing countries is not only scientific research aimed at widening the horizon of human knowledge by means of scientific discoveries but also the continuous transfer and introduction of techniques already established in more advanced countries.

In agriculture, for instance, the well known and straightforward changes in the use of fertilizer, better seed, new tools and plant protection can as much as quadruple yields from the land. In the domain of applied medical sciences a transition from the usual X-ray equipment to radioisotope sources for diagnosis and therapy can be expected. These and similar changes involve also the extension and development of documentation services.

The world of developing countries might well despair if it had used up all the available advanced technology and was still undernourished; the vastness of the world potential of technological innovations is the best guarantee of technical and economic progress, and the task of transferring existing knowledge to developing countries is correspondingly urgent.

13. The national libraries, and the national bibliographies usually compiled by the former, should not remain isolated from the national documentation and information system. The role they play is an important one, since they fulfil primary functions in the field of information and integrally complement the activities of the special libraries and documentation centres.

When planning and developing documentation, the national libraries and national bibliographies should be relied on and the plans coordinated with their work in order to

achieve complete national coverage of documentations sources and to avoid unnecessary parallelism.

14. International cooperation has an important part to play in establishing and developing national documentation systems in the developing countries. Essential factors in this cooperation are the international organizations such as the UN and UNIDO and the specialized agencies of the UN such as UNESCO, FAO, WHO, ILO and, among the non-governmental organizations, FID, ICSU, IFLA, etc., as well as such regional intergovernmental organizations as the Council of Mutual Economic Aid or OECD.

Perhaps UNESCO has made the greatest contribution in this field by the

- establishment and organization of documentation centres,
- delegation of experts,
- fellowships,
- supply of equipment for documentation centres, etc.

International organizations and institutions, however, can provide only what Socrates called maieutic aid; they can act as a sort of a midwife, suggesting means and ways for the development of documentation. But if developing countries fail to assume their own responsibilities in this matter, the result can hardly be satisfactory.

The task of our Symposium is to discuss the problems and issues of establishing documentation networks in the developing countries and of assisting their efforts to this end.

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National Library and National Bibliography

Béchir El Fani

Sooner or later independent countries come to consider the possibility of establishing a national library—an official state institution. The name has prestige and first recalls to mind the great national libraries of the world which some people have had the chance of visiting or using. Yet, what exactly are these national libraries? Where can they be found? What services do they offer? How does one work there? Who works there?

These questions give rise to another series of questions. What is a national bibliography in a developing country? Who will establish it? Which institutions and which people? Whom will it serve?

A reply to these questions poses other questions relating to structure, staff training, coordination and cooperation.

I shall tray to reply on the basis of the little experience I have gained in my own country and on studies made in other newly independent countries. In order to give you some idea about this sector, I would like to describe briefly the situation in my country. Obviously this is merely one among many; on the other hand, it is by no means the most neglected sector in countries of the Third World.

Tunisia has 4 1/2 million inhabitants, one quarter of whom live in the capital or the area immediately surrounding it. The economic, social and political life centred on Tunis. The cultural and scientific institutions are also located in Tunis.

Publishing is dealt with by national companies and private publishing houses. The central and regional administra-

tion as well as the scientific and cultural institutions also publish. Certain departments and organizations own libraries particularly notable for their collections of specialized periodicals. The university libraries are expending and the national documentation centre, founded this year, plays the role of general information centre.

A network of libraries for popular literature comprises 160 units and over 300.000 volumes. Under the same Ministry and department are the Libraries Administration, the National Library, and the Centre for Bibliographical Techniques which was founded this year.

The National Library, which in 1956 replaced the Public Library of Tunis, has 240.000 non-Arabic volumes and 5000 manuscripts.

The Centre for Bibliographical Techniques is aiming to attain the level of a National Bibliography Centre.

Without going into detail, the situation in Tunisia may be characterized as follows: there are many foreign documents, but their organization, classification and use leave much to be desired. Coordination is lacking at acquisition level as well at the other end of the chain, at information level. There is also a considerable lack of competent staff. For more than two years however, (since the first colloquium on documentation was held at the Bach Hamba Institute in December 1964) those responsible have been aware of these problems.

This country is not totally without resources, yet it is not a country having a well-developed documentary network.

I believe that development in the field of bibliography and documentation constitutes an integral part of a country's

general development. The expansion of the network of documentation units is dependent on the expansion of networks of schools and their scientific research institutes and also of economic units.

I shall therefore try to describe to you how I imagine a National Library and a National Bibliography to be in a country such as mine or in a less favoured country. For the purposes of this paper I have studied the situation in the countries of Maghreb, Mauretania and Senegal. In so doing I have tried to obtain as reliable facts as possible. Of these five countries, the country with the most advantages is Algeria, as she has inherited many structures already in existence. However, she still has common characteristics. Indeed these five countries, due allowance being made for the differences arising from their non-parallel development, have common characteristics apart from Islam, namely, they are part of the same continent and enjoy a common recent past. French colonization has, in spite of colonial oppression, given these countries scientific institutions, libraries and certain structures. And we, the people of these countries, have inherited French methods and standards from the French way of life.

We have established a centralized state. We realize little outside it. And for good reason. None of our countries has a non-profit organization capable of supplying it in the sector in which we are interested. Traditional organizations existed or still exist for religious, charitable or welfare work. They are, however, so removed from the modern world that it would be impossible to associate them with any of its aspects.

On the other hand, although Arabic is the official language in Maghreb, the French language is still used for administrative, scientific and technological purposes. It

is the common teaching language. It is the language used to communicate with the non-Arabic world. By continuing to train our personnel in France and elsewhere in Europe, we are maintaining contact with Europe, and this we feel is only right as we must rise quickly to international level. I would like to mention here that at each stage of development we strive to gain from the experience of advanced countries in the field under consideration and not to begin from the beginning, as we have to make up for our great delay. In the knowledge that development proceeds according to geometrical progression, we can restrict the efforts which we need to make. Valid objections have been raised against my views, and yet if you are striving for efficiency and profit, is it not better to consider the organization of bibliography in a wider, regional context which has greater viability? I feel that at the present time, things being as they are, the national level cannot be overstepped. Before establishing regional structures common to several countries, it is first of all necessary to establish structures at national level. It is cooperation between the different countries which leads to the establishment of regional structures.

These are general conditions under which both the National Library and the National Bibliography may be introduced. Althought the one is an institution, an establishment, and the other an intellectual activity, they both require common or similar material, technical and legal conditions. In our countries the publishing sector is not very active and most of the literacy and scientific works are imported from abroad. This is due to the fact that the free supply of publications from the National Library is very reduced. On the other hand, the importance of international exchanges as a source of indirect acquisitions is very limited. There is often no law on the supply of deposit copies and a lack of understanding on the part of the

booksellers for their interest value and hence no voluntary copies in default of deposit copies. The booktrade is so weak that it cannot be regarded as a source of either financial of technical aid for the National Bibliography.

In addition to this, the scientific staff capable of conceiving, orienting and directing these activities is practically non-existent in the fields of publishing, bookselling and documentation in its wider sense. Furthermore, disputes about competence may arise and paralize rational activities.

With regard to the National Library, the first dispute arises in connection eith the definition of its role—preserver of national publications and public manuscripts. In view of what I said previously concerning the narrowness of this production, it is evident that the field of activities must be expanded.

At the present time there are two choices a) National and University Library or b) General National Library. Should the National Library be combined with the University Library? In consideration of the role previously defined, the stock of manuscripts, the ancient stock and the stock arising from the acquisition of national publication are all of interest to researchers and historians. All these people are connected or work with the university. This reference library, however, has its place in the university. Teaching material bought by the university and foreign publications will complete the existing collections. This will allow for economization where foreign collections are more or less identical, and the ancient collections and the national collections on higher education and scientific research could be united. In this way certain invaluable works would be uniquely in the hands of experts.

The main inconvenience of such a project is that this library will inevitably be oriented towards teaching needs and academic research and open almost exclusively to members of this particular body of the nation.

The other choice supposes that the University Library, in serving higher education, will find the means of providing students with the publications they require. Researchers and teachers will find the documentation they require in the University Library and elsewhere. In view of the country's weak library network, on the other hand, it would be advisable for the National Library to be the big general and encyclopaedic library of the country, thus becoming the first public library in the country—a library worthy of a capital letter.

Apart from academic researchers, it is necessery to attract occasional researchers, autodidacts, inquisitive people, and citizens wishing to relax. This aim is evident in all of the countries mentioned. Under the colonial regime public libraries were set up in certain capitals of the colonies (Tunis, Algiers, Rabat), taking the municipal libraries of the provincial towns in France as a model. These libraries were supplied to a certain extent by deposit copies, thus preserving their ancient stock. They served both as reference libraries and as public reading libraries. The National Library of Algiers, which became such after the second World War, has preserved these activities. In the other countries previously mentioned there would appear to be a tendency towards similar solutions.

From this point of view it is necessary, in addition to acquiring national publications and foreign publications dealing with the country in question, to acquire a selection of foreign publications, especially if national publishing

has a low output and the demand is high in all fields at the same time for either scholarly or non-scholarly documentation. It must be emphasized here that this factor is as important as the French language is important for us as an everyday language. It is a means by which we are able to gain access to the modern world, to the world of science and technology, thus allowing us to become acquainted with and to appreciate international level, the standard of development. It also allows us to participate in French cultural life. How important it is to have a good stock of French language publications! Countries which inherited French collections are today, even though they hesitated on the morrow of independence, seeking to develop a national stock of French language publications. The difficult course, which appears to be the only one aiding development, demands considerable effort on the part of the National Library in acquiring foreign books. This policy of acquisition is all the more expensive as national publications to be exchanged are, of course, rare, and even more rare where there is no central organization to deal with international exchange.

Thus, paradoxically, the National Libraries of less favoured countries should be granted proportionally greater loans than rich countries. If you consider that they, too, in Maghreb especially, must work at double speed in order to set up valuable Arabic collections, you become aware of their vast task and the vital need to find sufficient financial sources for them.

As it is impossible, however, to assume the entire role of an international encyclopaedic library, the National Library should rely on the acquisitions of all other libraries of the country. The general library should not take the trouble, in contrast to specialized libraries, to acquire

works and periodicals on specialized subjects either by exchange or purchase. In order, therefore, for such a general national and international library to exist, it is essential that a certain loose and flexible coordination counteract the present anarchy in this field. It is also necessary to found the activities of the national library, like those of other libraries, on a broad basis of international cooperation which should assist countries of the Third World with publication but also meet the demands for loans of books, microfilms or photocopies.

This has been a broad outline of the problem of the National Library in the countries under consideration and of as to what, in my opinion, and I repeat that this is merely my personal opinion, should be done to solve it.

We shall now deal with the question of what a National Bibliography is (when it exists) and what it could be in these same countries.

The difficulties with which the National Bibliography is faced are to a certain extent the same as those facing the National Library. In Europe, the Bibliography is usually created long after the national libraries have been established and long after the law on the deposit copy has been introduced. The bibliography has been the work of booksellers. They are the professionals of the booktrade and were,if I may be allowed to say, the first "general" bibliographers. The booktrade gave birth to national bibliography. In several years time the Federal Republic of Germany will be celebrating the 500th anniversary of the first Book Fair in Frankfurt, on which occasion the first list of publications, the Fair catalogue, was dawn up.

Even today, despite the occurrence of state intervention in some European countries, the National Bibliography is still, to a certain extent, a matter for the booktrade. It is a question of making known publications which have appeared on the book market.

In our countries, as has already been said, the booktrade is unbeatable in this respect. In fact, at the present, our booksellers are booksellers because they are businessmen and not the countrary. There is no hope, therefore, that the booktrade will create, as is the case in the Federal Republic of Germany, an organization which, by receiving voluntary copies from editors and printers, will compose a general National Bibliography.

In Europe it is the supply of deposit copies which led to the establishment of the National Library. In the same way the National Library has come to take part in the National Bibliography. In consideration of the role of the National Library, in view of its vast tasks of acquiring, cataloguing and making publications known, in view of the lack of reliable competent staff, and in view of the fact that the National Library itself is obliged to enforce external standards, it is advisable to give aid by providing the Library with bibliographical reviews ready for the national publications.

On the other hand, publishing is very weak in our countries, and publications written abroad about these countries are often more important than those written at home. Furthermore, articles in periodicals concerning the country can also be very important. The National Bibliography should not therefore be satisfied merely with deposit copies but should collect all possible information written abroad on the country in question and make analyses of articles in periodicals.

The National Bibliography should be bilingual for the purposes of publishing and for the library stocks. The purpose of the National Bibliography is to give information on the latest publications and it will thus be systematically classified, as is the case in the Bibliographies of Algeria and Morocco, the only ones in existence at the present time. The one in Morocco has, within a short space of time, reproduced reviews of works and articles from periodicals using the universal decimal classification system. The one in Algeria, which takes a census of works and periodicals and classifies them within the main divisions of the U.D.C. cannot be called a current bibliography because the instalments follow at intervals of one and a half to two years.

In order to carry out these tasks and measures, the organization in charge of compiling the National Bibliography should collect information from documentation units in the country itself as well as from national of international foreign organizations with which it is closely connected.

This would assume that this bibliographical organization would be at the centre of coordination in the country and would know, thanks to a continual census, exactly what collective catalogues the cultural and scientific institutions are offering.

These tasks involve very different activities from those of the librarians in the National Library, who are responsible for the difficult task of acquiring the previously mentioned stocks, of cataloguing, preserving and making them known. Their responsibility demands that they be continually prepared to receive books and service readers who have to be oriented and informed. These tasks involve varying competences and special methods and conditions of work.

For all these reasons and in order to meet the planning requirements with which we are concerned during this Symposium, it is logical to imagine a bibliography centre located at the point where the bibliographical activities in each of the countries under consideration converge and in which all efforts would be coordinated; acquisition plans, international exchanges, collective catalogues, national bibliography, professional information. In order to be truly efficient, this centre would be dependent on an organization in charge of public reading and scientific information which would at the same time deal with the archives, the libraries and centres of documentation and information. Centralization here would seem to me to be necessary not only in view of the progress which has been achieved recently by library economy, bilbiography and paleography, but also because in our countries centralization alone can provide sufficient modern, expensive and quickly out-of-date equipment just in the same way as it provides for the training and assignment of a homogeneous qualified staff.

In our countries the problem of competent staff is such that it is very often a question of finding or training abroad units who would be able to form a creative means of achieving homogenity of documentary activities and the uniform training of scientific and technical personnel.

In this way the library associations and librarian associations in the countries with an old library tradition may be compared to the centralizing state in our countries, where the aim is to create traditions on the same level as those in developed countries. The budgets are, however, so small that financial sources must be found.

The booksellers discovered a long time ago that the sale of stationery is a stable source of profit compensating for the risks in selling books. The profit realized in the book

and stationery trade could be considered as a possible means of partly financing public reading and national bibliographical activities in the countries concerned. This is even less illogical when we consider that in some of these countries there are national societies dealing exclusively with the import and distribution of stationery and books. In this way the main publishing house in each country would be directly involved in bibliographical and reading matters. Hence the booktrade comes to know its rights and duties in these sectors, and financial aid will soon be replaced by scientific and technical aid.

Under these conditions of integration it is possible that the centralization of public reading and scientific information, whilst retaining an administrative protection and a flexible state control, would become an organization on the basis of a financial autonomy, e.g., a "National Book Office."

Despite the considerable financial contributions from the booktrade, the organization of a serious national bibliographical activity cannot develop without the cooperation of developed countries. Multilateral and bilateral aid brings about the realization of projects elaborated and presented by competent persons in the country itself. If, however, there are no competent persons, the first valid measure of aid should be the training in appropriate institutes in developed countries of a person having at least university training and a certain amount of experience in administration and social life who is also capable of deliberation and of forming ideas. Once the national "homologue" has been found, international experts may help this or that country efficiently.

Hence the most necessary form of aid is the training of sufficient staff members at international level for the bibliography and related activities. The scientific quality, by which I understand university quality, must be comparable to that of staff trained in the Federal Republic of Germany and France. Aid in the training sector in the countries under consideration does exist, and one centre has been created by an international organization in Dakar, another in Algiers with the help of France, and another in Tunis with the aid of a German foundation. These centres give efficient aid to the training of technicians at elementary level who render a limited service to the countries under consideration. However, just as in industry priority is given to "industrializing industries," here, too, priority is given to the training of formative autochthonous staff. Once trained, the scientific staff are capable of training elementary technical staff and within a few years even senior technical staff.

On the other hand, in order to be efficient, international aid must be given in the language chosen by the country. This would be French in the case of the countries under consideration. Just as scholars with a grant are sent out by countries to non-French-speaking countries, experts assigned to our countries should be prepared to tackle their tasks in the French language. They must also be initiated into the social conditions in these countries.

In fact, I feel that it would be advisable, at least for international organizations, to select from this same group of countries a number of experts suitable for developing the activities of importance to us. This is very possible, as the five countries in question are all at different stages of development in the bibliographical sectors.

Apart from training, the most important form of aid is, in my opinion, the organization and development of national bibliographical centres capable of coordinating the bibliographical and related activities of each of these countries and organizing their planning. This would make international cooperation easier and more effective.

In conclusion, I would like to say how important it is to me that there is large-scale international aid in these sectors to help our countries which are confronted at the same time with economic priorities and general education for the many and eager youth who need bread, culture and work.

If,according to the newspapers, some of the large powers are running out the breath, our countries are justified in regarding the future of bibliography, despite our enthusiasm, with a certain degree of apprehension.

Library Development in Nigeria

P. Rappaport

I would like to thank you for this opportunity to speak before you on library development in Nigeria. At a recent meeting of the FID conference in Tokyo, I learned that little was known about libraries in countries in Africa South of the Sahara. I was particularly dismayed at the lack of knowledge of the remarkable development in libraries in Nigeria.

I find that this lack of information means that poor communication exists between libraries in Nigeria and libraries abroad. I hope that my recent tour of national libraries and my speeches presented before library associations and library schools have done something to improve this situation. Libraries exist for their use and they can be used most effectively and to the best advantage only when other agencies are aware of their existence.

A library in a developing country such as Nigeria must of necessity be organized differently from libraries in countries with a long tradition for libraries. In developed countries, libraries have become an integral part of the educational system. However, its main purpose in a country such as Nigeria is to aid the researcher who is by necessity the main implement for the country in its attempt to expand its economic, technical and social horizons. All libraries in Nigeria strive towards these goals but no library is saddled with as difficult a task as that of the National Library.

If you look at the masses of material being issued during this period we call the "information explosion," you will come across terms such as computer generated book catalogue, information retrieval, high speed xeroxing, data processing, data-phones, etc. All of these terms refer to very important developments in the field of library technology. However,

taken in a Nigerian or for that matter in an African context they contribute very little to the development of their libraries, and it is most important for us to be careful of going too fast, too far, and with too little. We in Nigeria are at the beginnings of library development. No library of any significance is more than twenty years old. Our problems are many. Our solutions are forthcoming. Our resources are just beginning to become significant. The National Library must of necessity lead the way to proper library development. We must, however, always adhere to the highest standards of our profession. We must insist on standards of excellence. We may not be able to always reach the highest standards of productivity, but this too will come. There are few experts on national libraries and thus there is much we need to learn. FID is in an unusual position. If properly guided, it can be of enormous value to libraries in developing countries. We will need your help, but the help that we get must be applicable within a realistic framework. A framework geared to our needs and based on an approach in the realm of the possible. Pilot projects come and go but the day-to-day problems in developing countries exist, and often simple tried and true solutions are all that are needed. However, I have come here to talk about the National Library of Nigeria and also to tell you a little bit about other libraries in Nigeria. We in Nigeria are lucky for we have had administrations who have recognized all along that libraries and development go hand in hand.

One of the oldest libraries in Africa South of the Sahara is the University of Ibadan Library, founded about twenty years ago. It now has one of the largest collections in all Africa. The library has grown enormously and has about 250.000 volumes. It is at the moment responsible for producing the national bibliography which is called Nigerian Publications. It has been producing this bibliography since 1950.

The Ibadan library has grown out of its present building and has just extended its accommodations to a very large, modern and well equipped library building. Its librarian, Mr. John Harris, is probably the father of librarianship in West Africa. Mr. Harris, a man of great vision, has done a remarkable job and has left his imprint on all libraries in Nigeria. The library in Ibadan also houses one of the finest government document collections in West Africa. It has a large microfilm and photo-duplicating section. It has long since passed the stages of a primitive library situation and it can compete favourably with any library of comparable size in any place in the world.

The University of Nigeria, with campuses at Enugu and Nsukka, and the Ahmadu Bello University at Zaria have two well established libraries. They are well organized and have been functioning now for some time. Both libraries lack what most libraries in West Africa lack, and that is money. However, they are managing to do a thoroughly professional job with the limited resources at their disposal.

The University of Lagos library is housed in a beautiful new building, has been operating for several years, and is in its developing stages. It is a small library at the moment but Government realises that University libraries are expensive to run and has been providing it with necessary funds and staff to see to it that it can perform the functions expected of a traditional university library.

The University of Ife library was opened last year and is in its infancy, and so far not much is reported about it.

The public library situation in Nigeria is not what it should be. However, the Eastern Regional library system which is located in the so-called break-away Biafran Republic is certainly a system to be reckoned with. As far as I

am concerned, it can stand up very favourably to many of the public library systems in very many of the American States. The library has children's sections, young peoples' sections, adult reading rooms, branches, mobile libraries and even conducts film shows, plays, seminars, etc.

The Lagos Central Library has a beautiful new building, and is servicing the Capital State well despite enormous problems. The Northern Regional library situated in Kaduna is also in a new building and provides services similar to those provided at the Eastern library system. However, the Northern Region is a vast region and many areas are not serviced at all because of a lack of funds and because of a lack of trained personnel.

One of the major problems facing public libraries in Nigeria is that public libraries are not used as public libraries in developed countries are used. Space is at premium and students use the library to study for their G.C.E. because they have no other place to go. Homes are crowded,ill-equipped, badly lighted and so the library takes the place of the living room or study, and seats in the reading rooms are at a premium; often people wait outside for an opportunity to come in to sit and study.

Special libraries in Nigeria are mainly those found in Ministries and as yet there are few significant ones except for the Central Bank library and the Central Medical library.

I have given you a brief survey of conditions in libraries in Nigeria. I would now like to spend some time telling you a little bit about the National Library of Nigeria.

We in the National Library see ourselves as a research facility whose aim is to serve the book needs of the nation, to complement and to supplement the university, the public

and the special libraries in the country. In order to do this, we have collected a very fine basic reference collection of books, serials and documents. These have been processed and are now available for use. The library has about 40-45.000 volumes. It receives about 2.000 periodicals and about 8.000 Government documents a year. It has a comprehensive collection of United Nations documents and it has been a United Nations depository since 1964. It has a fine collection of United Kingdom command papers going back to the 18th century. It has a complete set of the memoirs of the Royal Colonial Institute of Belgium containing anthropological papers on Congo and Africa South of the Sahara. It has a collection of microfilm editions of newspapers, including the London Times back to its beginnings and many Lagos and African papers back to the 19th century. It has a comprehensive collection of Nigeriana, that is to say, books published in Nigeria, about Nigeria, and by Nigerians. It has the Human Relations Area Files on microcards which is one of the most extensive collections of data on anthropology ever assembled. It is preparing an Index to Nigerian Periodical Literature which will soon be available on a subscription basis. It is compiling the National Union Catalogue and we are attempting to do this with aid of the computer. This Catalogue will coordinate the holdings of five of the university libraries in Nigeria. It is attempting to collect manuscripts and rare books for their proper preservation and use. It has started a publication series entitled "National Library Publications" and so far four numbers have been issued which include:

1. Special Libraries in Nigeria.
2. The Arts in Nigeria, a Selective Bibliography.
3. 18th and 19th Century Africana in the National Library of Nigeria.
4. The National Library of Nigeria: A guide to its use.

Two more are in preparation and they will be a Guide to Nigerian Serials in Print and a Retrospective Lagos Bibliography.

The library is classified in the Library of Congress Classification Scheme and our cataloguing is done with the aid of the Library of Congress Printed Catalogue, but we also do original cataloguing. Our catalogue processing is done by a photo-duplicating procedure.

The library is a reference library and we circulate books only to institutions such as universities, government, trade unions and business. We offer a photo-duplicating service to facilitate the use of our collections.

We believe that the library is vital to the development of Nigeria. We believe that Government feels this as well. We have had an enlightened administration, an administration that recognizes that the fruits of education will be seen in future generations and that the National Library is an essential part of the educational experience. We reject the notion that the librarian is a "keeper of the printed book." In Nigeria this should be anathema. We must insist that the librarian be a dynamic person whose slogan is "the useful book is the used book."

I hope that what I have said throws some light on what has been happening in Nigeria in the areas of library development. We are anxious to become allied with the fraternity of the world's great libraries. We are anxious to serve not only our public but the public at large throughout the world.

We are extending our research services to other libraries throughout the world through the medium of the O.E.C.D. Development Programme Enquiry Service.

We in Nigeria and espacially at the National Library are proud of our achievements. We realize that we are small but we are encouraged by the support that libraries get from

Government even in the midst of war. Nigeria will succeed in its development plans and this success will have been accomplished partly because of Government's faith in the value of its libraries.

Organisations such as FID, UNESCO, Foundations and the like will, and have been, of enormous help, and they must be encouraged to do more. However, in Nigeria the world can see what can happen in a developing country with vision and progressive thinking, and it can learn much.

Documentation Centres at Scientific Institutions in Developing Countries

T. Gladstein

The subject to be discussed is "Documentation Planning in Developing Countries." In other words, I am supposed to report on documentation centres at scientific institutions in developing countries. Myself, I would rather have the subject read: "Centres of Scientific, Technological and Economic Information at University Libraries in Developing Countries"—as the Institute in Prague is called—since I am (as are, presumably, some of those present) one of those who do not exactly know what is meant by "documentation." In my opinion, an "information-officer, -scientist, or -engineer," as he is called in the United States, "ingénieur de documentation" in France, "Dokumentar" in Germany is what we used to call a subject specialist, whose duties at present include abstracting and literature evaluation. Using Husserl's terminology, however, I would assume that documentation is an "object of intent" (intentionales Objekt), namely, that all present know that this concept means and there is no need to define it in content and scope.

When at last year's meeting of the FID/DC Committee at The Hague I put forward the view that documentation centres in developing countries should, like the technological information library (Technische Informationsbibliothek) in Hanover, be affiliated with an existing library of an institute of technology or university, my reasons were twofold:

1. shortage of skilled staff, which is naturally much more acute in developing countries than in America or Europe;
2. avoidance of duplication of holdings.

In the meantime, I have studied the problem more closely. In my opinion, the university library is "a dependant functio "

Accordingly, I turned my attention first to the state of higher learning in Africa. In addition to conversations with Sir Eric Ashby, who visited the Haifa Technion this year, and with our faculty members who taught for a year or more at African universities, I consulted relevant literature. Here I would mention only two sources of exceptional importance:

1. Sir Eric Ashby's comprehensive study: "Universities: British, Indian, African"[1])
2. "Educational Systems in Africa" by Martena Sasnett & Inez Sepmeyer[2]) which contains useful information and enables one to compare the curricula of African universities with those in Europe and the United States.

At the IATUL Third Triennial Working Party, which was devoted to the problems of technological university libraries in Africa, held in Haifa in April this year, I had an opportunity to discuss with African colleagues the state and needs of their libraries. On my way to Bad Godesberg I paid a flying visit to Nairobi, where I gathered first-hand information at the Regional Centre for Science and Technology for Africa and the University Library. Unfortunately, I was unable to meet Mr. Lwanga of the library of the Makerere University College and Mr. Thompson of the Kampala Technical Institute, about whose activities I have heard so much.

Recent publications concerning libraries in developing countries in general[3]) and in Africa in particular[4]) do not refer to the problems we are discussing. Valuable in this respect is the Final Report of the Working Party of Specialists[5]) and the Bulletin of the Regional Centre for Science and Technology for Africa[6]). The question I have to answer is: should an information centre serving a single country, or a group of countries like East Africa, be differently organized than for instance the reference de-

1)2)3)4)5)6): see page 42

partment of the Technion Library in Haifa, representing a medium sized library? My answer is in the negative, since we are expected to serve not only faculty members and students, but also industry and government agencies. We have to know when, whether and where scientific meetings have taken place; we have to supply accurate information on the activities of UNIDO, UNDP, not to mention OECD. This means that every library—whether at an Institute of Technology, a Technological University, or a School of Science and Technology of a University, should have facilities enabling faculty members and students to undertake extensive literature search. The library should either possess the literature, including translations, or be able to make it available at short notice. Since pure and applied science are at present closely interwoven and actually overlap in part, a reliable technological library should include a collection of patents, at least in the form of abstracts, etc.

To aid students and industry in preparing assignments and projects, the library should possess a comprehensive collection of standards, commercial and trade catalogues, house periodicals, etc. As industry not only deals with large scale problems but occasionally—espacially in the case of smaller firms—comes to grief over minor technological difficulties, the library may have to supply appropriate American, Danish or Canadian material. This kind of assistance by technological libraries is nothing new. That the Technion Library in Haifa provides such information is only known in Israel; by contrast, the fame of the technological information library (Bibliothek der Technischen Hochschule und Technische Informationsbibliothek) in Hanover has spread far outside Germany's borders.

Technological libraries may be accused of being passive, i.e., of only acting upon request. This must be admitted,

but passivity is not inherent to a library. To cite only one example, the library of the Technical University in Prague has, for years, been publishing valuable bibliographies in various fields.

Finally, I should like to mention what I learned in Nairobi a week ago:

In setting up a Documentation Information Centre in a developing country, the far from negligible holdings of research institutes established before the universities, and operating independently of them, should be taken into consideration. (I would add that institutes at such a level probably exist only in the developing countries previously or still part of the Commomwealth.)

In general, I found no difference between the approach of our colleagues in Africa, who are doing a difficult but outstanding job, and our own. As some of us are members of the academic senates of our respective institutions and follow closely the development of universities in other countries, we try to anticipate the outcome (as the Hebrew saying goes) and do not base our collections merely on present needs, but foresee the future development of the university and the demands on our library. It is essential, in my opinion, that the attention of our colleagues in the developing countries be drawn to this important aspect of our work in a modern technological library.

Having visited Nairobi, I have to modify another point of my opinion expressed at The Hague last year. While Prof. Majewski recommended global planning, I came out for regional planning. As late as the Haifa meeting, I still regarded English- and French-speaking Africa as a single homogeneous entity. Now, having studied the economic, industrial and social structure of these countries and, above all, having discussed the problems at the Regional Centre in Nairobi

where they are thoroughly familiar with the region, I am convinced that a global approach is ruled out and that planning should be confined to even smaller areas than I thought.

In conclusion, let me convey the regards of our colleagues in Nairobi and their best wishes for a fruitful meeting. This symposium in Bad Godesberg will be successful if we find ways and means to aid our colleagues in developing countries in setting up a Documentation-Information Department at one of the existing university libraries.

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Agriculture: Research and Development Institutes, Associations

C. Swabey

Introduction

This paper has been prepared at very short notice and it has not been possible to consult other workers in this field. It therefore does no more than reflect the personal views of the author and is presented solely as a basis for discussion. It is not an expression of the views of the Commonwealth Agricultural Bureaux organization.

Awareness of literature

Any local or regional documentation service in this field will probably have to deal with material in the following categories:

(a) Published documents specifically about the country, originating either locally or elsewhere.

(b) Documents prepared in institutions in the country, but unpublished or available only on limited distribution.

(c) Documents published outside the country and not having direct reference to it, but clearly relevant to the country's agricultural crops, practices or problems.

Each of these categories poses somewhat different difficulties of access.

Published documents about the country

The agricultural documentation service will presumably have little difficulty in arranging that locally published material will be made available to it. This is likely to be

mainly from government or quasi-government departments and research institutions, from University faculties and from local technical and/or extension journals.

Documents specifically about the country and published elsewhere will often take the form of reports of visits by technical missions or individual experts. While normally copies of these are transmitted formally to the country concerned, there is some danger that they may become virtually inaccessible in ministerial files or records, particularly where such reports are channelled through a single Ministry. It should be the duty of a documentation service to ensure that it has access to such documents. Sometimes it may happen that documents in this category are not received in the country and awareness of them may have to depend on the procedures suggested in para. (c) below.

Unpublished documents

A great deal of work is done in the fields of agriculture and forestry, in departments, institutes or universities, the results of which remain almost inaccessible. It may be that the research is long-term and final results may take years before they are completed; or the work is inconclusive or has produced negative results. It is of importance that other workers on such problems should be aware that work has been done or that it is being done. It is of interest in this connection that FAO has recently set up a documentation unit to classify and publish indexes of its own documents, since it was found that even its own staff were not always aware of the existence of earlier studies.

The first duty of an agricultural documentation service might well be to ensure that all relevant unpublished work is made accessible in some form. The usual media for this are:

(i) The institutional annual report. This is not always a very satisfactory method: the report is often written for non-specialists and the inclusion of technical detail may be discouraged. Where full technical annual reports, or separate research annual reports, are published, it is important that they should receive adequate classifying and indexing.

(ii) The research note. The publication (often in duplicated form for restricted distribution) of research notes or progress reports on specific projects of observations is undertaken by many institutions in cases where even preliminary results may be of interest to specialist workers in the field.

(iii) Catalogue of research projects. The mere fact that research is being undertaken in a particular field is of interest to other workers, and there is much to be said for the publication of such catalogues at suitable intervals (e.g. the catalogue of current research projects in Britain published annually by the Agricultural Research Council).

Other relevant published documents

Agricultural problems throughout the world have many factors in commom, and the local documentstion service must be aware of literature not only from countries with comparable natur l or economic environments but—through more selectively—or literature dealing with fundamentals, techniques, new concepts, etc.

It remains wholly impracticable for each developing country (and, for that matter, quite uneconomic for each developed country) to attempt to establish its own documentation service covering world literature, with the breadth of coverage and multiplicity of languages and disciplines which

that implies. For this category of literature, and also for part of that at (a)(ii), local services need to make use of existing world-wide documentation agencies.

In the agricultural field there was an early recognition of the need for such services and a conspicuous example is the Commonwealth Agricultural Bureaux organization, its origins going back to 1913, which now provides a comprehensive international documentation service in all the important branches of agriculture, stock management and forestry. Its services are widely used throughout the world.

Acquisition of literature

So far, consideration has been given to awareness of the literature; bibliographical references and abstracts are of little value unless facilities exist for gaining access to the originals. It is assumed that purchasing arrangements will have been made to acquire at any rate a selection of the most important current publications in the field.

There will inevitably be many relevant scientific papers that are not automatically received in the country, and it is essential that the local documentation service should know where reproduction facilities (photostat, microfilm, etc.) are available and how they can be obtained and used.

Translations

The agricultural scientist is a no better linguist than his colleagues in other disciplines and he is constantly faced with the need to secure translations of papers published in unfamiliar languages. This is probably particularly true in developing countries. Existing facilities, either for undertaking translations in this field or for dissemi-

nating awareness of the existence of such as have been made, are quite inadequate, and it is hoped that these deficiencies will receive urgent attention at international level.

Classification, indexing and retrieval methods

These aspects of documentation are comparable to those in other disciplines and are not dealt with specifically in this note. Classification in agriculture is being studied by FID/C.63, while it is of interest that in the forestry field an international classification, approved by FAO and IUFRO, the Oxford System of Decimal Classification for Forestry (an abridged version of which is incorporated into the UDC under the number 634.0) is now widely used by forestry institutions throughout the world, including many developing countries.

Dissemination

The dissemination of agricultural information may be considered from the following aspects:

(a) To make accessible technical data arising from surveys, investigations, etc., largely for the information of scientific workers, both for 'current awareness' and for retrospective searches of the relevant literature. Many professional workers in this field, particularly in developing countries, are, to varying degrees, isolated from frequent contact with their fellow scientists. Any documentation service must ensure that relevant information reaches these field workers as well as those in formally constituted scientific institutions.

(b) To present the results of such studies in such a form that they can be applied in the field under local conditions.

The problems of application of the results of research to field practice is nowhere more acute than in the field of agriculture: its practitioners are widely scattered in rural communities, often have low standards of literacy and are traditionally conservative. It is important that extension workers should be fully aware of the results of any work that has a bearing on imprevement of field practices under local conditions.

Conclusion

It must be emphasised that, however well equipped a local documentation service may be in terms of material resources (buildings, library facilities, modern equipment, etc.), its success will depend in the final analysis on that even scarcer commodity, human brain-power. It is essential, therefore, that the fullest use be made of existing international documentation facilities; any local attempt to duplicate such services in any field would not only be a gross misuse of manpower, be would, almost certainly, be ineffective.

Policy Planning for Technical Information in Industry

H. Wooster

I have been asked today to lead a discussion on documentation planning for industry in developing countries. My talk will be in three parts. In the first of these I will discuss the policies and the milieu needed for innovative, technological industry to flourish; in the second I will report on recent studies of how scientists and engineers in industry go about getting the information they need to do their jobs, and in the third part will mention certain practical aspects of operating documentation or information systems in industry.

You will find only a few passing references to the problems of developing countries as such. I am reasonably familiar with the problems of developing industry, and of developing documentation systems in a fairly advanced country which shares a fervent belief in free enterprise with an equally fervent belief in anti-trust laws, and federal sponsorship of research and development. I hope others will speak equally freely of the problems in their countries.

I. Management of Research and Development in Industry

I assume that the primary purpose of documentation in industry is to serve research and development, and that the primary purpose of employs it. This part of my paper will be concerned with the problems of industry first, and research and development second. The latter parts of the paper will discuss documentation more specifically, but I think it important to place documentation in context. I will be talking primarily about manufacturing industry, but I would assume that certain of the things I have to say, perhaps with a different time constant, would apply equally well to such industries as transportation or electrical power.

Just what does manufacturing industry do? In the broadest scope, manufacturing is concerned with the conversion of matter and energy into useful products for markets. It encompassed those phases of industrial operations that deal in volume with the preparation of raw materials, conversion into useful shapes, processing into products and devices, and assembly into complex systems.

A company can grow and become more successful by pursuing some combination of the four courses which are available to it. First, it can improve its profitability by reducing costs; second, it can expand its penetration in the markets it is already in with products it already has. Both of these options require a continuing evolutionary improvement in the quality of its products in order to meet ever more intense competition. Third, the company can grow by creating new products to serve its current and immediately accessible markets. Finally, the company can grow by successfully creating completely new business based on technology which it creates itself or acquires. The fourth option carries with it the potential for the greatest growth and also the greatest potential for failure.

Applied research in manufacturing technology is generally directed toward accomplishment of the following objectives: (a) manufacturing procedures to attain new specifications and performance standards; (b) improvement in quality, reliability and uniformity of final output; (c) decrease cost of manufacturing operations.

Improvement of any of these activities implies dissatisfaction with the status quo. The next part of my discussion is based on the assumption that somewhere in both line and staff management of a company are individuals who want to change the status quo. There are at least five sorts of research activities these individuals may engage in.

(1) Science oriented research - this is research done in order to increase the amount of knowledge about a field of science, a phenomenon or a material. Although it is usually in subjects related to current or potential commercial activity of a company, it is not directed towards any specific new process or product. This kind of research may be indistinguishable from basic research done in universities. (2) Process oriented research - the objective is to decrease the cost and improve the efficiency of making a known product from an available raw material. It may and often does involve novel technology. (3) Raw material oriented research - the objective is to increase the value of products or raw materials available to the company by transforming them into new and more valuable products. (4) Products oriented research - the objective is to find alternate and wider uses for existing products and to find new products that will be better than those available for existing applications. (5) Customer oriented research - the objective is to find products to add to those already sold to existing customers.

Harvey Brooks of Harvard University has pointed out[1)] that there are certain identifiable characteristics of successful mission oriented laboratories that seem to be independent of whether they are located in government, industry or universities. Some of these characteristics are listed below.

1. Full awareness and general acceptance of the principal goals of the organization by its key people.

2. Willingness to consider and implement new ideas and initiatives on their own merits regardless of the organizational level at which they originate or whether they come from inside or outside the organization.

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3. Mobility of people between the more fundamental and applied activities of the organization.

4. Quick recognition and funding of new ideas at least to the point of ascertaining the desirability of a larger commitment.

5. Extensive freedom at each organizational level in the organization to reallocate the resources within the relevant area of responsibility.

6. Full communication through stages of the research and development process from early research to ultimate user.

7. A good organizational memory for the enduring technological problems and means related to the broad mission of the organization or laboratory. Professor Brooks goes on to point out that it is this organizational memory, of which I will have more to say later, that most distinguishes the mission oriented laboratory from a university or basic research laboratory. In basic research memory and continuity tend to be deposited in the scientific literature and professional communications system rather than in a particular organization.

8. A system of recognition and reward that assigns highest significance to technical contributions to the goals of the organization.

There is a marked difference in the extent to which companies in various industries engage in research and development activities. A study carried out by the National Science Foundation of the United States shows that in January 1965 346.300 scientists and engineers were employed in research and development. Almost one third of

these, 101.200, were employed in the aircraft and missile industry; only 500 were employed in the lumber, wood products and furniture industry. This distribution of effort is set forth in the following table:

Table I[2)]

Lumber, wood products and furniture	500
Textiles and apparel	1.200
Non-ferrous and other metal products	2.300
Paper and allied products	2.600
Primary ferrous products	3.000
Miscellaneous manufacturing industries	3.500
Stone, clay and glass products	4.900
Food and kindred products	5.600
Rubber products	5.600
Fabricated metal products	6.800
Miscellaneous chemicals	7.200
Drugs and medicines	7.600
Optical, surgical, photographic and other instruments	7.600
Petroleum refining and extraction	8.900
Scientific and mechanical measuring instruments	8.900
Nonmanufacturing industries	10.500
Motor vehicles and other transportation equipment	24.700
Industrial chemicals	26.200
Non-communication electrical equipment	32.200
Machinery	32.600
Communication equipment and electrical components	42.600
Aircraft and missiles	101.200

I am not suggesting that this pattern of allocation of research and development manpower is necessarily an ideal allocation of a nation's resources. I could even argue that this in fact constitutes a reverse list of priorities for developing countries. One of the standard questions in manu-

2): see page 69

facturing is "make or buy." Is it cheaper and/or better to make an item in your own shops or to purchase it from an outside, specialist supplier? I would imagine that the same question might well face the planners of a developing country—whether to make their own technology, or buy it from an outside supplier? This list does, however, indicate the relative importance of innovation in various industries and, in effect, the price that a nation has to pay in research and development manpower if it is to assume a commanding role in a particular industry.

You should be reminded, however, that there is more to industrial success than research and development. A study recently carried out among 100 graduates of an executive development program in Peru[3] showed that these managers thought that the major obstacles to industrial development in Peru were finance, followed by production and sales, and the two most important problems facing Peruvian industry were the limited extent of the national market, and the amount of competition already in the market.

And the International Computation Centre in Italy, in a recent announcement of a major policy change[4], wrote:

"One of the crucial elements of current economic and social evolution is the impact of technology. There are however increasingly wide differences in the manner in which countries take part in technological progress. Both in the measures that they contribute to it and the benefits that they obtain... It seems common sense to say that adequate participation in technological evolution by any country, commensurate to its means and problems, requires the formulation and implementation of an autonomous national technological policy as well as the coordination at regional and possibly world levels of such national policies.

3)4): see page 69

"Some countries which possess valuable technological assets are puzzled by the insufficient interest that other display in strengthening ties with them in order to share in the exploitation of such assets by offering something in exchange. Underdeveloped countries start resenting the fact that technological progress is not just a question of availability of capital equipment, as soon as they are faced with their incapacity to exploit the expensive machinery that they have imported, either with great strain on their foreign exchange or through foreign aid. Too many industrialists limit their interests in the benefits that modern technology can provide to the acquisition of know how and patents, as well as fragmentary government subsidies but are neither able nor willing to change the organizational structures and managerial practices that technological evolution requires, nor to inform and inspire politicians to take a consistent course of action which is of general interest. Finally, too few political and industrial leaders appreciate the fact that technology has got beyond the stage in which share access, in the form of documentation and absence of legal restrictions, is a sufficient cause for its utilization; that nowadays any successful attempt to import technology requires from the recipient a major effort towards developing a context in which such technology can be used, which in a way means contributing to the technology itself."

II. Information Transfer in Industrial Research and Development

But let us set aside for the moment the questions of research and development policy, and the even weightier problems of a national policy to encourage industrial development and technological innovation, and ask: How do scientists and engineers in industry get the information they need to have to do their jobs?

The traditional approach has been through the study of library records, such as the circulation of books and periodicals. In recent years, at least in the United States and the United Kingdom, the tendency has been to study all aspects of information transfer within a given setting, with the library treated as just one information resource among many. Needless to say, these studies tend to be carried out by sociologists or psychologists, anybody but librarians or documentalists.

One of the most recent of these studies has been reported by Richard Rosenbloom and Francis Wolek, of the Graduate School of Business Administration of Harvard University[5]. The authors studied 2.000 scientists and engineers in 13 establishments of four large corporations, and 1.200 members of the Institute of Electrical and Electronic Engineers. The authors made the following generalizations:

1. The transfer of technical information is primarily between people.

2. The most used sources of information are local, and within company.

3. Self-reliance—or, perhaps, self- and group-reliance—characterize acquisition of technical information.

4. More than one third of the instances of acquisition of information ensue without a specific search for the information acquired; chance acquisition of information (and living in an information-rich environment) is significant in this part of the information transfer process.

5. The incidence of specific search falls as job rank rises.

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6. Use of sources within the same company directly with seniority.

7. As technology becomes more applied, there is an increased reliance on interpersonal channels, less use of published documents and a corresponding increase in the relative reliance on unpublished written sources; a greater incidence of the acquisition of information through specific search; and less use of sources external to the company.

8. In cases where the technology is rapidly changing or is broadly based, engineers are less able to depend, and hence actually depend less, on personal experience and local expertise for needed information.

9. The beliefs of the local engineering staff with respect to the value of knowledge and of professional activities are a major determinant in the pattern of information flow.

What were some of their specific findings?

The sorts of literature used by scientists and by engineers differ markedly. Among scientists they are almost entirely made up of articles and books which constitute the "professional" literature. Among engineers the use of these professional sources is matched by the use of information from trade magazines, commercial catalogues and technical publications, and technical reports of other organizations.

Scientists tend to make subtantially more use than do engineers of sources outside the corporation, a difference which is especially marked in respect to the use of professional journals and books. Among scientists, sources within their own corporation provide information in only one third

of the instances, as opposed to the strong majority, typically 50 to 70 percent, of the instances reported by most groups of engineers.

Substantial differences occur between those working in central laboratories of a corporation and those working in operating divisions. Engineers and scientists working in central laboratories tend to use sources outside their own corporation; this situation is reversed in operating divisions, where from three fifths to three quarters of the responses cite sources within the same firm.

Engineers and scientists with a high commitment to development of personal skills, as shown by reading professional publications, joining professional societies and attending their meetings, use professional journals and other published documents considerably more often, and use local sources of information less, than is true of the average scientist or engineer.

Men in the life sciences and in chemistry seem to make greater use of the formal literature than do physicists and mathematicians. Interpersonal communication with sources outside their own firms seems more common among life scientists and computer scientists than among chemists or any of the engineering groups. Chemical and metallurgical engineers report a greater use of professional documents and a lesser reliance upon sources within their firms than do mechanical and electrical engineers.

About half (55 percent) of the interpersonal exchanges within a firm leading the user to a source of information were provided by other scientists and engineers, but a surprising 41 percent came from non-technical employees. An even more surprising 4 percent were furnished by librarians

or other staff in an information centre!

Perhaps this 4 percent figure should be surprising because it is so large. In a British study[6], 600 scientists using one of 25 selected libraries were asked where they had found reference to details of the literature. In 33 percent of the cases cited, the source of the discovery was a colleague's recommendation; 1 percent had their attention drawn by library staff. The same men, and these were library users, mind you, asked to rank twelve ways of getting information in order of usefulness, ranked using the library card index as eleventh, and asking the librarian as twelfth.

But before you get too indignant about the slothful and decadent ways in which scientists and engineers gather information, let me remind you of a study recently carried out on how science information specialists gather information[7]. The authors asked 127 science information specialists such questions as:

"What do you need to know about the field of science information itself in order to perform your duties in a scientific information service? What other things do you need to know about the science information field that you seem unable to find? What sources are helpful to you when faced with problems related to your work? What sources have you thought should have been helpful but which have actually turned out be disappointing? Are your sources of information good enough to enable you to detect changes and keep abreast of trends so you can adequately plan for your professional duties or do you need something else? How and where do you acquire information about the latest developments and concepts procedures, services and equipment coming from research and development people? Is there enough of it? Or do you need some more?"

6)7): see page 69

Would it startle any of you who have come to this meeting to learn that "science information specialists seem to prefer direct contact with people as their primary source of obtaining information about their own field?" Face to face consultation at one another's place of business, telephone conversations, and the informal discussions that take place between and after formal sessions at conferences are prefered to any other method. Time and time again the interviewees expressed the feeling that their particular situation was unique and that they needed the opportunity to discuss their particular problems at some length with people of other organizations who may have experienced similar problems. Many respondents felt that formal conferences and serial publications are much too theoretical and do not attack the practical problems which science information specialists constantly face. The informal discussions at professional conferences were considered highly profitable while the quality of the delivered papers during the formal presentations were unacceptable by many.

One other inclusion of this report seems appropriate for quotation at this meeting. "There is widespread disbelief that the claims made from many equipments and systems advocated for use in the information sciences field are even partially accurate. Many centres, espacially those in the possession of industry, do not dare reveal their true cost or their efficiency (their managements would summarily scuttle them!). Hard data is badly needed to evaluate the efficacies of various alternatives. Our informants believe, probably correctly, that most information centres and services are founded, operated and supported by individuals who are so blindly partisan that they couldn't see a contrary fact if it were pasted on their nose."

III. Responsibilities of the Documentalist in Industry

What are the responsibilities of the documentalist, or scientific and technical information specialist, or information scientist in industry—say the man who is hired to set up a special library and/or information centre in an industrial firm which has never had either a documentalist or a document collection?

I think that his first task, which is fairly easy but all too often ignored, is to find out what products the company makes. After that, he should try to find out what products it is planning to make next year and the year after that. The more he knows about his company, the better he will be able to serve the mission of the company by the documents he acquires, and the services he offers.

Another important role, all too often in conventional librarianship, of the technical information activity in industry is to act as the organizational memory which Professor Brooks refers to. The most expensive information which any laboratory acquires is that which is bought by the effort of its own staff members. All too often this information stays locked up in their heads or their desk drawers to be lost forever when they leave the organization. Institution of a proper project information report system and proper files governing those reports should be one of the early responsibilities of a new information activity in an industrial organization.

Engineering drawings and change orders are an equally important part of this organizational memory. In the past, I am afraid, libraries have tended to let other activities in the organization handle engineering drawings because of their physical bulk which makes them a nuisance to file.

One of the several advantages of newer systems for handling engineering drawings on microfilm aperture cards is that they make it physically possible to store these with project reports as part of the organizational memory.

The documentalist in industry is given a certain amount of money each year. He has to decide how to use these resources to help his firm meet its objectives. Certain charges may be made on his budget for space, occupied, for heat, light and the like. There isn't much that can be done about these. His professional judgement comes in when he has to decide whether to spend his money to buy sources of information—books, periodicals and the like, or to hire people to provide services.

Let me cite the two boundary conditions. It would be possible, although hardly advisable, for a manager to turn his entire library budget over to a commercial bookseller, and let the office boy open the crates of incoming books for the users to paw through. The other, equally unattractive, alternative is to spend all your money for salaries, and let your people spend their time trying to borrow books from other libraries and documentation centres!

I have tried to list, in Table II, the possible sources of information, and in Table III the services it is possible to provide.

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Table II[7)]

Sources of information

Books

Periodicals

Learned journals published by professional societies
New journals published by societies
Learned journals published by commercial publishers
Trade journals by commercial publishers
House journals
Abstracting and indexing journals
Reviews of "advances"

Technical documentary reports

External (usually government sponsored)
Internal - company proprietary

Trade literature

Conference papers

Patents

Standards (e.g., official specifications)

Miscellaneous

e.g., films, illustrations, phonograph records, spectra, maps, and even samples of physical specimens, such as plants (herbaria) and fossils.

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Table III[7)]

Types of requests

1. Demands for specific documents; the commonest kind of demand, necessitating an adequate collection of bibliographical reference works for ensuring accurate references.

2. Demands for specific data; properties, formulae, etc., requiring data books in the relevant subject fields.

3. Retrospective searches: the emphasis here is on "all relevant references," and a good collection of abstracting and indexing services is essential.

4. Current-awareness demands; the chief requirement for which is a good collection of current periodicals which the user may search himself plus, perhaps, some form of selective dissemination service run by the library.

5. Exhaustive search demands; an extension of 3 above, usually required when the user needs to know that something definitely does not exist, as in patent searches.

6. Searches for research ideas; can only be carried out by the user himself, and often lead to other demands (see 1 through 5 above).

Each manager of a documentation centre must decide how best to allocate his resources, in information sources and services, to meet his users' needs. These have to be individual decisions, to meet individual cases, but there are a few general remarks that can be made.

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For instance, although it may sound like heresy to an audience of documentalists, I think that an important part of the budget should go towards buying books. Books may seem expensive, but I submit that they are the largest single bargain in the technical information field. I suggest also that the place for these books is in the library or on the desks of the scientists and engineers who are using them. I recently visited the Defense Research and Development Laboratory of one of the NATO countries. I was struck by the bareness of the library shelves, and asked the young lady in charge, "Don't you have any books?" "Oh yes, sir" she said, "but they're all in the Director's office." And sure enough, there they were, forming an impressive backdrop to his equally impressive desk.

And, get to know your users! They are your best aides in deciding what materials to buy. What is even more important, they can be your best allies in your chronic struggles with management, which never seems to understand the problems of the library—probably because, since they have so little time for personal reading, they tend to be functional illiterates.

The person who best knows what he needs in scientific and technical information is the user, but that the person who can know almost as much about the users' needs is the librarian or documentalists in day to day working contact with the user. I have occasionally expressed this as an equation, "P x R = K," where P is the personal involvement of the documentalist, and R the resources at his or her disposal; K of course being the user satisfaction. Unfortunately, in my experience, personal involvement and resources tend to vary inversely and I would far rather work with a motivated documentalist than to approach a large impersonal centralized information institute.

One of the most effective developmental technical information activities I have ever seen is in the Indian armies radar research and development establishment, LRDE, in Bangalore, India. I do not attribute this success to either their use of colon classification or the absence of a computer. LRDE has six component laboratories. A young scientist or engineer employed by the library is assigned to act as liaison between the library and each separate laboratory. He spends half of his time in the library keeping track of the incoming literature. The other half of his time in the laboratory talking to the scientists and engineers, telling them what he has found, and finding out what they are interested in knowing. To a civil servant the most convincing testimonial to this system is the fact that when a cut-back in library personnel was threatened the laboratories said: "Oh,no. You can't fire those people. They are ours!"

I have very carefully avoided talking about the tools of the documentalists' trade—classification systems, abstracting, indexing, mechanization. These are means, not ends. An overpreoccupation with these tools and techniques as ends in themselves can promote such situations as those described by Lester Asheim, of the American Library Association, in his recent book, "Librarianship in Developing Countries."[9] He is writing of the American librarian abroad who, when he comes to special libraries: "may suddenly find the king of library with which he is more familiar... In a country where there seems to be little organized information and small demand for it, suddenly he finds advanced systems of information retrieval; in a country where even the simplest of card catalogs is seldom provided, he finds centres of documentation at an advanced stage of development; in a country where the 'librarian' of most institutions has no professional training and exhibits no interest in the field, he finds Ph.D's from the leading graduate library schools of Europe and the United States."

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Asheim goes on to say: "It is difficult to know whether to be delighted or disturbed; are these libraries and information centres really serving a purpose, or are they merely an empty symbol, necessary to the desired national image, which must have a twentieth-century surface despite the seventieth-century reality behind it?"

In all too short a time I have tried to describe the industrial environment, and the policies which are needed if innovative industry is to flourish; I have discussed the ways in which scientists and engineers in industry go about getting the information they need, and hinted that at least in this respect documentalists may be sans peur, but certainly not sans reproche; and have mentioned certain practical aspects of operating documentation or information systems in industry.

To some, my emphasis on the importance of oral and informal communication may leave no role for formal documentation. I remind them that the first step in overcoming problems is to recognize their existence. I am prepared to argue that more frequent use of information outside the local environment, and a greater disposition toward seeking information in the formal literature would have a beneficial impact on the development of science and technology; would reduce the rate of obsolescence of technical skills; would link together the results of work done in separate organizations or in diverse fields; and hence would accelerate the transfer of technology from field to field and from place to place.

As Alfred North Whitehead observed more than forty years ago, "the discovery of how to set about bridging the gap between the scientific idea and the ultimate product" was

an important element of the nineteenth century's "invention of the method of invention." We as documentalists could try to bridge that gap by using documents as fascines; dead bundles to fill ditches. I don't recommend it, though it's been tried, and hasn't worked. There must be better ways of doing the job.

It is not too difficult to change the way in which an individual document centre or library does things; the difficulty goes up exponentially with the number of units which must be tried into a network, and particularly if it is to be a national or international network. And to those who would establish firm policies, and freeze design at too early a date, I offer the following quotation from Emily Hahn's new book,[10] a sign to be found in the Zoological Gardens in Dehiwala, Ceylon:

"East is East and West is West,
Though this may not seem relevant.
We all know how to milk a cow,
But you can't muck about with an elephant."

10): see page 70

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Training of Documentalists in Regard to Developing Countries

H. Arntz

We should perhaps search our consciences. Is it right that we provide the teachers, that we use our documentation as a basis, that we produce new text books for developing countries? Is it not perhaps better to adjust planning to the transition taking place so that we will be engaged in these activities only until the developing countries are in the position to carry them out themselves? And are not many of them already in a position to do so?

No progress will be achieved, however, if we continue to speak generally of teachers, teaching documentation and above all developing countries. It was only a few weeks ago at the Second International Reprography Congress in Cologne that we prevented a discussion taking place on what developing countries really are. We prevented the discussion taking place because it was not the topic of a panel discussion; this does not, however, mean that we consider developing countries as a unity.

In the field of documentation—and I am dealing exclusively with documentation here—there is a vast difference between Argentina and Paraguay or between Mexico and Honduras in Latin America, between India and Burma in Asia, between Tunisia and Chad in Africa. We can also distinguish a division into three groups of countries in the field of documentation. The group of industrialized countries (Group I) (Europe, USA, Canada, Japan, Republic of South Africa and Australia) contrasts with a group of underdeveloped countries which we shall refer to as Group III. Included in the latter are most of the French-speaking countries in Africa south of the Sahara. Between these two groups is another much smaller group, including, for example, Tunisia, India, and Pakistan. Despite overlapping, this group—we call it Group II—contrasts greatly with the other two and is by far

the most interesting not only from the point of view of a Committee for Developing Countries but also from the point of view of industrialized countries in general. These countries constitute a bridge, and priority should be given to the stabilization of this bridge.

In more concrete and frank terms, this would imply that there is no point scattering means and manpower according to the principle of the watering can; all efforts must be directed towards strengthening the "threshold powers" of Group II. They have other possibilities for penetrating their world (Argentina and Mexico in Latin America, Tunisia in French-speaking Africa, etc.) than we do, and they not only can but should carry forward as soon as possible the flame we bring to them. We do not have the intention, I repeat, of being responsible for documentation in developing countries; yet we must carry responsibility until these countries have gained sufficient technical experience in this field.

So far Group II (the higher developed developing countries) have not been dealt with separately, although it is quite obvious that their knowledge of the problems confronting truly underdeveloped countries—Group III—is far greater than ours, and their own psychological situation is much better. It is far more difficult for industrialized countries to enter into the situation prevailing in developing countries.

I have come to the conclusion therefore that teaching staff and material should be made available as soon as possible to Group III not by Group I but by Group II. This says nothing about the question of financing, although I have no intention of avoiding this moral obligation.

Such a solution—if we are honest—would provide protection for our work. Publications especially designed for developing countries are not suitable for use in industrialized countries. There is a great danger that important points become veiled with statements not relevant to the readers but which ensure that the same publications may also be used for teaching purposes in developing countries, namely, find "profitable use."

There is also the question of whether our languages provide the correct basis. Since the Ceylonese government introduced Singhalese as the official language, since the struggle in India between Hindi and Tamil, since Urdu and Bengali have been promoted in Pakistan, the knowledge of the international language has considerably declined. We are merely deluding ourselves in thinking that English is the language of the levels of population in Ceylon, India, Burma or Thailand for whom our documentation is intended.

Yet the solution is not to be found in translating the textbooks into Burmese; this would first require a relevant terminology. Even if documentation is published especially for developing countries, the non-existant terms form a barrier between ourselves and those for whom the books are intended. At the moment, however, it is merely wishful thinking to imagine that documentarians all over the world can first learn a common language. I am not referring here to those working in international committees and who attend congresses; because these people are on a level with industrialized countries, we often tend to forget how few in number they are and that—although excellent representatives of their nations—they are in no way concerned with practical documentation in their own nation.

We are therefore confronted with the first main task, which will for a long time remain the task of industrialized countries, namely, the compilation of a useful terminology —for and I hesitate here when I say—developing countries. Our own terminology is far from being organized, to say nothing of being standardized. I need only mention the difficulties involved in compiling multilingual Thesauri, or, taking a more practical example, the dictionary of reprography for the Second International Congress on Reprography held in Cologne in autumn 1967, which was supposed to be trilingual. Shortly before publication, France withdrew her contribution as she considered her terminology (of a by no means modern field) to be insufficiently consolidated for publication purposes.

If this is the case, the task is beyond the scope of FID/DC. From the linguistic point of view this task is more suitable perhaps for FID/LD; it would not, however, be sensible to restrict it to one particular committee.

Are publications for documentation training more suitable? We have, for example, Frank's "Modern Documentation and Information Practices," published in 1961 and translated into Spanish and Serbo-Croatian. We have the "Manuel Pratique de Reproduction Documentaire et de Sélection" by Pindron, published in 1964, a Spanish edition of which was supposed to appear in 1967 in Buenos Aires, an English edition of which is being prepared by INSDOC. Finally there are a large number of reference books, including the bibliography of directories of sources of information (1960), the "National Technical Information Services—Worldwide Directory," Prague 1966, and of course the many editions of decimal classification.

No publications have, however, be produced especially for developing countries, and I believe that the short version

of the documentation edition is a bad example for use in libraries in Africa. This is because it merely leaves out information relevant only to industrialized countries, whereas its aim should be to take the needs of developing countries as a basis and build up that which is relevant to their stage of development, their problems and their economic or social and cultural situation. This cannot be achieved by simple abbreviation.

These publications must first of all be produced, and although I said that terminology will remain the task of industrialized countries for a long time, I am of the opinion that the higher developed developing countries (Group II) are already in a position to provide without any difficulty the teaching basis for themselves as well for Group II. I do not refer here to financing; I am convinced it is our duty as industrialized countries to assist these efforts financially. Countries of Group II should compile short manuals for themselves and for Group III, and FID/DC should consider this as one of their main activities.

Mr. Rappaport pointed out this morning that we should not impose our standards but rather adjust our measures to the conditions prevailing in the country concerned. I would like to take this opportunity to praise his report: it is a perfect example of the lead which librarians have over us. We in the field of documentation do not have such a solid basis. I would also like to refer to Mr. El Fani's statements regarding a similar basic training for librarians, documentarians and archivists. I believe that these divisions should not continue to develop separately. This involves a further need, namely, common basic training for librarians, archivists and documentarians in developing countries—they are very often in personal contact or exchange roles anyway. Here we have another main problem: our carefully worked out teaching material is a basis for training as

either librarian, archivist, or documentarian. Where is the teaching course combining these three types of training into one, meeting the needs of all three, and making complete interchangeability possible?

Another question is now answered, namely, whether in fact we should train documentation experts or simply documentarians. From the point of view of developing countries the answer would be: If the staff member has to be able to take care of both library and archive work, then his training must be as a documentarian on a broad basis; specialization would be very unsuitable.

A trained person will find an occupation and will be forced to acquire special knowledge. It would be a misreading of the problem if in view of the lack of well-trained persons to do fifty or more different types of work, our aim were to produce specialists only.

The industrialized countries are also faced with the problem of how to coordinate all the information branches, how to synthesize archives, libraries and documentation centres into larger information units. The prerequisites for this vary. Industrial countries must unite the separate sections, and developing countries must avoid separation; the aim is, however, the same.

The question of setting up regional commissions was broached by Mr. Danckwortt and explained by Mr. El Fani in further detail. I am very much in favour of regional cooperation; the difficulties must, however, not be underestimated: political difficulties between, for example, Tunisia and Egypt, language difficulties between Tunisia and Libya (for it is a question here of the langue vehiculaire and not the Arabic langue nationale), difficulties

of the documentation standard between Tunisia and Mauretania, etc. We should not ignore the differences between the various developing countries.

You are no doubt excepting me to deal with the important question of whether training should take place in the developing country or in the industrialized country. This question would become much less important if my idea to promote participation of Group II were adopted. A concrete example of this is the participation of documentation trainees from Dahomey, Cameroon, Algeria and Morocco in a course of study in Tunis. I consider this excellent, whereas I am not at all in favour of training documentarians in industrialized countries (Group I). It may sound a little hard if I say they will be spoilt there; this is, however, true as we can see from many other courses of study. This is due not only to the strange surroundings with all the resulting distractions and complications; difficulties are often experienced in using a foreign language, and occasionally the climate poses a problem. All this requires strength which is lost to the documentation training. This I consider, however, to be secondary. More important is the fact that documentation activities in industrialized countries have departed from that which for practical reasons must remain the object and method of documentation in developing countries for decades. Collection, classification, reporting and many other activities are, if we are honest, no longer undertaken in most documentation centres. Anonymous circles do this tremendous work; the stored result is accessible to the user, and by means of a completely new retrieval technique the computer can in general make the data available without any loss of information.

It would be foolish to consider this situation—which brought upon us an abundance of literature, an information crisis and technical progress—as a basis for the education

of documentarians from developing countries. This is what I meant when I said that they can only be spoilt in our countries: they will have illusions with regard to technical installations which cannot be put into practice in their home countries, and for this reason they will be reluctant to master the 'primitive' conditions at home.

Everything which I have said so far applies to the training of documentarians. Documentation teachers undergo practical training; preferably they should attend full courses in industrialized countries. Apart from knowing their subject matter they must have a wide background. To be a teacher does not only require knowledge of a language; one must be familiar with documentation techniques and also have pedagogic talent. The training of teachers is, therefore, an important task to be fulfilled by DC in cooperation with TD. The World List of Documentation Teachers compiled by FID/TD must be revised under these aspects, and better criteria must be established in order to provide unambiguous data.

We should not only concern ourselves with basic training and teachers but also with a third factor, which I consider to be highly important: follow-up and recyclage. If a young person from a developing country is carefully trained for six months and then sent back home, possibly being conscious of being the only certificated documentarian in his country, and left to himself, it cannot be expected that much remains of his training after five or ten years except for some of his practical skills. How can he, in his isolated position, follow progress in the field of documentation and regularly brush up on his knowledge? In my opinion it is more important to keep the knowledge of trained staff (for whom considerable investments had been made) at a high level and up to date rather than to continuously train new staff.

Before coming to the end of my paper, I would like to discuss three factors: subject matter, status and propaganda. I have already pointed out that there is no basic material available for the joint and balanced training of librarians, archivists and documentarians. I am also of the opinion that real concepts on the subject matter are lacking. It is obvious that we can dispense with some subjects, whereas others are of great importance. I believe that, for example, in the field of reprography those techniques should be taught which are actually used in the country concerned (not those used in the country where the teacher comes from). While information theory is of minor importance, main emphasis should be placed on practical classification work and lecturing.

Only when we take into consideration these facts will documentation work appear attractive, only then will we find the right students. It is not sufficient that they know how to read and write; they must have the right attitude and be convinced of the value of documentation work. Only on this basis can useful documentation work be carried through.

If only the best persons are to be attracted to documentation work, one problem must be solved: their future social status. We cannot make a profession attractive if it is assigned an insignificant place in the national scale of salaries. In order to improve the status, government circles have to be informed systematically, for example, on the information crisis which renders documentation not only necessary but highly important. We must admit that we, too, do not propagate documentation enough in our countries—in this respect I am definitely in favour of propaganda.

In my paper I have pointed out that which is imperfect, lacking and perhaps deficient in the field of documentation. I did so because I have been teaching in a developing country

(together with eminent colleagues) for three years and know all the weaknesses of our efforts at international level. Please do not take me for a pessimist, I am always deeply impressed by the vitality and the large reservoir of talents we encounter in these countries. It has been my main aim to show the great tasks with which our FID/DC Committee is confronted. This conference is proof of the seriousness with which FID/DC is endeavouring to find well-founded solutions to the problems discussed in this paper.

The Problems of Documentation in Developing Countries

J. C. G. Wesseling

There are two ways in which it is possible to teach persons from developing countries a certain technique or a certain branch of science so that they may pass on their knowledge to others in their own countries.

The first method is to invite suitable persons from the developing country to complete their study of the subject that interests them in a country that has all the necessary know-how. In that case there is a great risk that the student will lose his bearings in the new world that opens up before him. He sees so much more than is essential for the performance of the task for which he was sent out. This may lead him into paths that take him further and further away from the study on which he has embarked. He may also be tempted to try and prolong his stay in the host country while the experience he has gained is needed at home. Finally, it is not impossible that all newly acquired knowledge that is so willingly thrust upon the inexperienced student will have the effect of rendering him unsuitable to perform properly the function—sometimes a modest one—allotted to him in his homeland when he returns on completion of his studies. There are, of course, people who after their studies abroad are quite capable of using their newly acquired knowledge in their home countries for the benefit of their fellowcountrymen, but it requires a certain firmness of character, a quality that by no means all who go abroad to study possess.

The other method is to send experts from Europe and America to the developing countries. But here too, there are dangers. The expert considers it sufficient that he imparts the knowledge required to a small number of people. As soon as he feels he has accomplished this task, he returns to his own country, often already after one year.

He is paid for imparting that knowledge, but the funds are not inexhaustible. Consequently, he wants to get on with it and to achieve results as quickly as possible. He does not give himself enough time to study the special character of the local people or to notice and get the most out of the talents of his pupils.

Whichever method one chooses, in order to achieve results it will be necessary to have trained experts with adequate teaching ability—a point that should certainly not be overlooked—for training people in the developing country whose task will likewise be to train still more documentalists. Not the foreigner with his numerous adaptation problems, but the teacher born and bred in the developing country is the person best able to impart knowledge so that it will be put most efficiently into practice.

The first thing to do, then, is to form classes and to train people who will in turn pass on their knowledge to a wider circle of people.

This also applies to the transfer of knowledge in the field of documentation and information.

Much has already been achieved in training documentalists throughout the world. However, according to the "Guide to the World's Training Facilities in Documentation and Information Work" compiled by CIINTE (Central Institute for Scientific, Technical and Economic Information) in Warsaw and published by the FID, The Hague, in 1965, we find no more than five Latin American, six Asian and three African states among 34 countries that give training courses for documentalists. So a large field still lies fallow.

It will be a good thing—and this is already an item on the programme of this Commission—to publish first of all a primer, explaining in simple terms the precise scope of documentation.

It is also extremely important to ascertain what the "man in the field," who will have to make use of documentation in comparative isolation, actually needs. Bibliographic surveys such as "Chemical Abstracts" will be of very little use to him, because for the time being he will not have the opportunity to use in practice the latest and most complicated discoveries. What he needs are practical informative reports, preferably written in simple language that can be readily understood. For this, centres will have to be set up where such reports can be compiled. Very important documentation centres, where the training of documentalists, too, is of a very high standard, are already to be found in India (INSDOC - Indian National Scientific Documentation Centre; DRTC - Documentation Research and Training Centre) and in Pakistan (PANSDOC - Pakistan National Scientific and Technical Documentation Centre). It is doubtful, however, whether other developing countries will be able to attain at once the level reached by INSDOC, for instance. The significance of documentation in India cannot but be associated with the person of Professor Ranganathan, the eminent and world-famous scientist, by whose knowledge even the industrialized countries have benefited. However not every country has a Ranganathan. Another point is, of course, that an endeavour will have to be made to set up in every country a centre having many sources of information and capable of "translating" scientific knowledge for the benefit of "the man in the field." The popularization of scientific knowledge is in fact one of the most important aspects of the training of documentalists in developing countries.

The documentalist will require in the first place a general knowledge of the encyclopedia of sciences, or in other words of modern thought regarding human existance in the widest sense of the word. He should, moreover, be trained in the techniques of his subject without being overloaded with theoretical background matter (whether on documentation and information or classification), for this is what he needs least of all in the early stages. One might even say that the technical aspects of the subject can hardly be simple enough, so as to enable the documentalist to devote all his energy to the educational task, i.e. furnishing information to teachers, farmers and technicians so that everyone may enjoy better conditions of life. This, of course, is a simplification and, like all simplifications, has its shortcomings. The developing countries do not all have the same problems. One country may boast a relatively high level of agriculture, while another may have a more highly developed mining industry. Obviously, then, where documentation is concerned, more attention will have to be given to the farmers in the first country and to the miners in the second. The first stage, during which "the man in the field" receives from a given centre the information necessary for promoting the various interests of his region, will be followed by the stage in which he will have to be provided with additional and further documentation so as to be able to keep track of the latest developments in specific fields. Documentation work will thus, automatically, be raised to a higher level. And it will have to keep in step with the process of development which the country itself is undergoing. This, too, is illustrated in the above-mentioned "Guide." Studying the course of documentation provided by the Ali Bach Hamba Institute in Tunis, we find that its programme is a match for that of many an industrialized country. But one should certainly not expect that the more than 70 countries that still lack all training facilities

for documentation will be able to start in the same way as Tunisia.

We spoke above of training people to train documentalists. The visiting teacher from abroad has a special task here. The training of teachers of documentation in a developing country requires follow-up. It should not really happen, but in fact it does, that after having run a six-month course, such teachers leave the country with or without the intention of returning some six months later. For truly satisfactory results they should stay on for several years. They should be able to study the progress made by those who completed the course, now teachers themselves, and continue to assist them in every way possible. The visiting teacher would also have a better chance of getting to know and understanding the mentality and thought processes of the people with whom he comes into contact. And an understanding of the host country is precisely what matters. It is most difficult for the short-term visiting teacher to find out what results his work and that of his successors might produce. What people are suitable for this profession? What prejudices have to be overcome and, when they seem to have been overcome, is a relapse possible? The visiting teacher who prolongs his stay will have a better idea of the results of his endeavours; he will be able to make forecasts and, if necessary, outline a new policy. Contact with his ex-pupils is of the greatest importance, also for them. They do not feel quite so much like lonely pioneers and they are able to ask his advice in difficult situations. As it does not make much difference from the financial aspect whether a teacher stays for a short while, to be succeeded by someone else, or whether he stays in the same post for a number of years, the advantages of the latter course are evident. Naturally, it does make a difference where a course lasts only a few months and the teacher is not employed for

the rest of the year, if he then spends that time in his own country. But that is a procedure to be followed only in a country that already has a reasonably developed documentation system. However, our starting point was the developing country where everything has to be built up from the ground, and in such a country the short-term system seems definitely impractical.

These were some of the points we wished to mention concerning a problem that is, in essence, complex because the situation varies from country to country. Of all development aid projects, that whose purpose is the transfer of knowledge is perhaps the least spectacular and, financially, certainly not the most expensive. Yet in order of importance it closely follows the teaching of reading and writing and, on that account, it deserves and we trust it will receive a very high priority.

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The Role of the State and of the Government Agencies in Developing Countries

Z. Kosior, W. Wojciechowska

I.

Introductory Remarks

This paper deals with African countries[1] and considers the problem of scientific and technical information only, but not the problems of cultural standard of the given country however these two problems are very near.

Before describing the role of the state and of the government agencies in the field of scientific and technical information of developing countries, let us deliberate the following factors:

a) the standard of development of the given country in the field of science, technique and national economy;
b) the conditions of work of the country's information service network;
c) information materials and sources possessed;
d) results aimed at in the field of scientific and technical information connected with development of science, technique and national economy.

To begin with the first point, the standard of development of the given country in the field of science, technique and national economy, it is to confirm that developing countries have very different levels of development. Here we have at least two different categories of states:

- new states having no tradition in self-governing;
- states having their own tradition in governing but having been ruled by another power for a long time.

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1) Latin America has its own commission, the so-called Latin America Commission - FID/CLA. Asian countries mostly have their own information service organized already.

As a supplementary factor one must underline that natural resources of the given country play an important role in the activities of information service.

In the same way we must consider the problem of conditions of work and the volume of information materials and sources possessed. It is obviously clear that states having no tradition in self-governing have to organize their own information service, starting from the beginning. It does not mean that they have no information units or even information service at all left by a prior colonial governing power. Two possible problems may arise:

- either organize a new network of information service;
- or reorganize former information service according to the new conditions of independence.

The information sources available are closely connected with the state of the information services.

In order to solve the problem of providing information sources, the assistance of advanced countries is necessary. This assistance could be given by UNESCO free of charge, for example, maybe by means of buying information and documentation materials in developed countries. The exchange of information materials between advanced countries and developed countries is another possibility.

One more question to be considered in connection with the role of the state in developing information services is the long-term planning, financial planning, planning of scientific, technical and economic research.

After these very short remarks on the existing conditions in developing countries, let us now make some general con-

clusions about the role of state in the field of information services.

1. The new developing countries

In the first category of developing countries the system of scientific and technical information has to be worked out first. The elaborated systems must be based on the conditions existing in the given country:

- corresponding number of documentalists should be trained;
- the elaboration should include subsequent steps and stages of development; it should also provide for the coordination of the information work done in the state sector and in the private sectors;
- the information units or centres should be equipped in conformity to their activities (collections of information materials etc.);
- to ensure the corresponding status for information workers;
- to ensure the corresponding means for information work.

2. The old developing countries

The second category of developing countries could follow in some way the example of developed countries. The rapid development of science and technology during the 20th century and the enormous flow of information connected with this development compelled most countries to organize some systems of information. There are various reasons for the state to enter directly into the field of scientific and technical information:

- the necessity to ensure the proper inflow of information for the needs of the national economy in view of the risk of left behind in economic development by other countries;

- the necessity to coordinate the activities of information centres within the country and with regards to international relations;
- the necessity for the state to have the countries information services represented abroad several states have created large scientific and technical information centres.

We are witnesses of the activities of the state in the information services dealing on the one part with organizations and coordination of the information systems and on the other part with information services. In the socialist countries the institutions supervising the activities of the information services are usually State Committees for Science and Technology, attached to the highest executive agencies (Office of the Prime Minister, etc.).

Generally, the area of their activities is as follows:
- policy of scientific and technical progress—determination of the development;
- coordination of information and documentation in science and technology;
- coordination of international relations in the field of scientific and technical activities;
- conclusion of international agreements on scientific and technical information;
- representation of the country's information service in international relations.

In the so-called capitalistic countries the parallel organizations of the State Committees for Science and Technology may have various forms but their basic activities are rather similar to the activities of these "Committees." Generally there are the National Councils of Science and Technology.

These government agencies have executive organs which are mainly some kind of central institutes or offices for scientific, technical and economic documentation and information. The tasks of these central institutions could be described as follows:

- to take part in the activities of international organizations;
- to exchange information materials with foreign partners;
- to coordinate international relations of the country's information service.

Conclusions

The role of the state and of the government agencies in the field of scientific, technical and economic information is of permanent importance.

The highest governmental bodies—The Council of Ministers, the Prime Minister—direct and represent through their executive agencies national and international activities of the country's scientific and technical information services.

II.

The problem of the role of the State and of the government agencies in the developing countries—as seen in the light of planning in the African countries—is a difficult one not only on account of the sometimes rapidly changing political situations but also because of the limited quantity of source materials I could collect within the short notice I was given. For these reasons I had to restrict my report on the topic submitted to introductory observations, since the matter in hand requires at least a questionnaire investigation, as well as a thorough examination of literature on the subject. This reservation may prove necessary

in cases where I may have inadvertently disregarded some important items. The reporting character of my paper was the only possible course in a situation of lacking comparative material.

1. The Maghreb countries (North Africa)

The problem of development of documentation services in the Maghreb countries has been historically explained. In the course of many centuries there emerged a type of mediaeval libraries established in connection with mosques and religious schools. Until the 20th century they succesfully fulfilled the role of large cultural centres famous in the civilized world of the time. They were a factor in the preservation of tradition and often took on the form of outposts of nationalist struggle. One of the results of the introduction of the printed word and of the spread of modern systems of education was the establishment in Cairo in 1870 of the Dar El Kutub Library; organizationally it was based on the model of 19th century European State libraries.

Scientific societies founded in the same period included the Egyptian Academy (1798), the Egyptian Geographical Society (1875), and the Egyptian Agricultural Association (1898); they gave rise to special libraries.

After the restoration of Egyptian independence, government libraries were established at ministries and other institutions mainly for the use of civil servants. Such was the origin of the libraries at the Ministries of Education, Justice, of Agriculture, and also at the Egyptian Museum in Cairo. They include rich collections of government documents and legal texts. State archives were established at the same time, except for the Egyptian Archives (1828), reorganized in 1954 at the Ministry of Culture, which has a collection of documents connected with the history of Egypt.

Sudden increase in the number of libraries caused the need for specialized personnel and this was the reason for the establishment in 1951 at the University of Cairo of a Department of Archives and Library Science whose graduates were the first specialists to take up appointments as librarians. The young personnel was immediately faced with the problem of undertaking basic documentation work, including the introduction of subject classifications to the catalogues and uniformity of classifications.

The need for qualifications was the reason for the establishment of a course in Cairo in 1962 by the United Arab Republic National Commission for Unesco. This was the continuation of a similar course held in Beirut in 1959. It covered bibliography, documentation, and exchange. It was followed by preparations for an Arabic bibliography containing lists of current periodicals published in the Arab world, libraries, documentation centres, bibliography of biliographies, and a "vocabularium bibliothecarii," and also by the transformation of the Scientific and Technical Documentation Centre (1954), subordinate to National Research Centre of Egypt, into the National Documentation and Information Centre, on a national scale, to become in the future a Regional Centre serving all the Arab countries.

In Tunis, in 1965, courses for training in documentation were started at the Ali Bach Hamba Institute and they are continued with great success. Together with the Scientific Centre, the Institute held a joint seminar last year on the social sciences and documentation in the Maghreb countries. As a result of the debates it was recommended that efforts should be made to improve documentation through the cooperation of scientists and documentalists, to train new personnel, to standardize documentation technique, to establish documentation and information units and make lists of them.

It was also recommended to establish a comprehensive cooperation with individual centres abroad and with international organizations.

To sum up my brief observations on the Maghreb countries, I wish to quote an excerpt from a draft Unesco resolution to member-countries contained in the draft programme and budget for 1967-68 (Resolution 4.01, § 1094 k):

"Member-countries are asked to increase their efforts in the field of information, and especially ... to organize and develop library, documentation and archive centres ... in order to establish a coordinated system of information, so as to facilitate the execution of long-term plans for the development of education and sciences."

I also wish to quote § 1101:

"The state commission might probably wish to exarine wholly or in part, together with the appropriate institutions and organizations, the needs of its country with regard to libraries and documentation in order to introduce improvements and to inform its society about the advantages which well-organized libraries, ... documentation centres and archives can bring to the development of science and cultural life."

2. African countries south of the Sahara

The situation in Africa South of the Sahara was quite different from that of the Maghreb countries, and it seems that the problem of the origin and development of documentation should be considered in connection with the Unesco activities in this area. Following the Second World War, in 1946—the year Unesco was founded—there were two independent countries in Africa South of the Sahara: Ethiopia

and Liberia. The rest was the result of territories artificially divided between colonial states and slowly entering the period of struggle for liberation. Higher education was almost non-existent and primary schooling was only started.

The starting point for the realization of the Unesco programme for this area was the organization in 1953 at Ibadan, Nigeria, of a training course for future public librarians. It is worth stressing that it was held at a new University College. This course anticipated, in a way, the existing needs, since there were public libraries only in the Gold Coast (now Guinea), but it signalized at the same time the introduction of a programme of general education and subsequent establishment of interschool libraries.

Soon after gaining independence, the young African States began to introduce their programmes of higher education by founding new universities or colleges, or by raising the status of the existing ones. Here we can mention the Universities of Accra and Kumasi, Ghana; the Universities of Zaria, Ife, and Nsukka, Nigeria; and those in Kampala, Uganda; Dar-es-Salaam, Tanganyika; and Nairobi, Kenya.

All these universities and colleges are well equipped as well as having a fine architectural design, and contain modern library facilities with new acquisitions.

As a result of the training course for librarians at Ibadan, mentioned above, the idea was put forward for a central library to be set up at Enugu, Nigeria, to guide area libraries and a network of branches in the form of rural libraries. The cost of such a library service is more than Ь 45.000 a year, of which 70% covers salaries

of the staff which is wholly African. It is worth stressing that this cost is borne in full by the Library Council of Eastern Nigeria, an independent body whose activities are controlled by special legal acts. A similar library network has been set up in Ghana, where it is subordinate to the Ghana Library Council. It consists of 4 area libraries, 13 branches, and 9 reading centres. Here the total expenditure for library services is not higher than Ь 120.000 a year. A similar development can be observed in the Ivory Coast and in Senegal.

In 1962 Unesco organized another training course for librarians, during which detailed recommendations were elaborated concerning the organization of a State library service, the legal status, coordination of the activities of various associations of librarians, and inter-library cooperation. As to the budget, it was recommended that in 1970 the expense for the library service should equal 1% of the whole sum appropriated for education, and that this percentage should increase successively. It was also recommended that individual states should organize the training of librarians on a large scale.

As a result of this, two courses were set up in West Africa: one at Ibadan (postgraduate), and the other in Accra—subsequently transformed into a department of the University. The problem of training of librarians in the French-speaking countries was solved through the establishment by the Government of Senegal of a Regional Centre for the Training of Librarians, sponsored by Unesco, and in East Africa through the setting up in Kampala by the Provisional Council of the University of East Africa of two courses: one of six months' duration, purely practical in character, and the other lasting for two years, designed to train specialists for managerial posts.

At the present time the trend in the development of library information is for special libraries which consequently must be supplemented by a network of documentation centres.

In July 1966 a group of specialists in scientific and technical documentation met at the Regional Centre on Science and Technology for Africa (CRSTA) in Nairobi. The participants of that meeting obliged the Centre to publish lists of scientific and technical periodicals appearing in Africa and to examine the possibility of regular publication of abstracts of scientific articles. It is obvious that most far-reaching cooperation between interested specialists, government agencies, and non-government organizations depends on the success of this initiative. Recommendations were approved, inviting member-countries from the region of Africa to take the necessary steps to establish centres of scientific and technical documentation to serve as individual information units in Africa.

At present Unesco is analysing the proposal of establishing an "Institute for Scientific Research into the Natural Resources of East Africa" which would contain a large documentation section. The biggest problem here is, no doubt, the lack of trained personnel, since there are in Africa no courses for the training of documentalists in the exact sciences. One can notice a sudden need for the setting up of short-term courses to be held either locally or by correspondence. These proposals on a national, regional, and international scale have in mind the creation of a network of scientific institutes for every State or region, backed by centres of scientific and technical documentation.

Propositions

1. There is a necessity for FID/DC to sound by questionnaire the scientific institutes in African states and to process data with regard to presenting the current state of documentation services, together with their planned increase.

2. As part of Proposition 1, the Information Centre on Africa of the Central Institute of Scientific, Technical and Economic Information offers its participation in the preparation and sending out of questionnaires and in processing data on science and technology, namely:
   a) The Centre will prepare in conjunction with the CRSTA a draft of the questionnaire and will propose a list of addressees.
   b) The Centre will process data in the form of a report to be presented at a successive session of FID/DC.

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The Role of a National Information Clearing House for Development Aid

E.-J. Frhr. von Ledebur

This paper is intended to provide information on the requirements and possibilities involved in the establishment of a modern documentation centre for development aid. Main emphasis will be placed on the Documentation Centre of the German Foundation for Developing Countries with its various tasks and functions—not so much for the purpose of demonstrating a model but rather in order to show in a pragmatic manner what has been done in this field to date.

Up until now there have been three main phases. The first phase is embodied in the tasks of the German Foundation for Developing Countries. This Foundation, which is a non-governmental organization, has the following tasks, mainly in the sphere of educational aid:

a) exchange of experiences, training and advanced training for specialists and higher level personnel from developing countries;
b) briefing of German experts taking up assignments in developing countries;
c) assisting in the solution of development aid problems by making available documents necessary to decision making.

In order to be able to carry through these tasks properly, certain basic information is required. The first step was therefore to ascertain which other organizations and institutions in the Federal Republic of Germany also concern themselves with problems of developing countries. After having compiled and analysed a file of these institutions, which was then published and sent to the organizations concerned, the need became evident to coordinate the various tasks more efficiently, to close existing gaps and to cooperate closer in the field of development policy.

For the German Foundation it was equally important to register all those German experts with broad knowledge and many years of experience in the field of development aid. These experts are needed for the organization of international seminars and technical courses, for work in the field of youth and adult education, and for the preparation of expert reports. This file is constantly updated in cooperation with a number of organizations and scientific institutes.

In order to make certain that the activities of the German Foundation were not carried through in an ivory tower, as it were, but rather in a practice-oriented manner, it proved necessary to obtain information on the progress of German development aid projects. Only by means of project lists, which contain the most important data on a project in operation, has it been possible to achieve a coordinating and cost-saving effect. Such project lists are still considered essential instruments for project planning.

In addition, there is a demand for the results of research studies and for information on projects in progress and on expert reports which are being prepared. These are all registered according to title, author, commissioning institution and theme in a file of research studies, research projects and expert reports and are published annually under the title "Developing Countries Studies" in one volume, including indexes. In order to provide a ready source of up-to-date information, proof editions are sent out three times a year to the institutions and persons concerned. Apart from providing a review on the progress of research projects, these "Developing Countries Studies" are considered an instrument of coordination in the various fields of research.

It also proved useful to list chronologically the numerous events in the fields of development aid—for example, conferences, international seminars, courses, etc., in order to provide detailed information (dates, topics, etc.) on the activities which are carried through in the Federal Republic of Germany or abroad by major organizations. For this purpose a File of Events is maintained. A Calendar of Events is published bi-monthly three months in advance.

Within the framework of development policy it is our aim not only to win partners but also to maintain contacts which have been established; for this purpose a file of follow-up contacts contains the addresses of all former guests of the German Foundation. Since there is an annual increase of about 500 addresses, it has proved advisable to store this material electronically. Thus it is possible to systematically maintain contacts with these groups of persons, who are of extraordinary importance for our development policy.

The files are supplemented by collections of literature, clippings, reports and documents which are maintained in the libraries and archives of the German Foundation.

Whereas in the first phase these documentation instruments were established primarily for the German Foundation and for all those organizations in the Federal Republic of Germany working in the sector of development aid, in the second phase (1964-1967) the need for cooperation on an international basis became evident. In the autumn of 1964 the German Foundation held an International Conference on International Cooperation in the Field of Documentation on Development Assistance. It was attended by documentation experts from twelve donor countries and representatives of the following international organizations:

The Centre International de Documentation Economique et Sociale Africaine (CIDESA), the Comité International pour la Documentation des Sciences Sociales (CIDSS), the Fédération Internationale de Documentation (FID), the Society for International Development (SID), the European Economic Commission (EEC), the Food and Agriculture Organization of the UN (FAO), the Organization for Economic Cooperation and Development, the OECD Development Centre, and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The aim of the Conference was to gain an insight into the most important activities of the donor countries and the participating international organizations in the field of development aid documentation and to discuss how to organize regular exchanges of views and experiences. It was the general opinion that a basis for a discussion would be given for national and international cooperation by evaluating and providing documentation material.

It became evident that the establishment of a well organized and thematically coordinated national documentation network is an essential prerequisite for effective international cooperation. A solution which suggested itself in the light of the main emphasis of activity of the German Foundation and other organizations was to establish a documentation association on "Socio-cultural Development Aid Questions." This idea was abandoned, however, it being felt that the field of enquiry would be too broad and the information obtained too extensive to avoid inaccuracy. Upon reconsidering this problem on the basis of experiences gained, attention was placed primarily on regional developing countries documentation. Priority is now given to "where" rather than to "what." The realization of this idea is facilitated by four very active and old-established associations and institutes in Hamburg concerned with overseas problems, each one concentrating on one particular region: The Africa Association and the German Institute for

African studies; the Near and Middle East Association and the Institute of Oriental Studies; the Institute of Asian Studies; the Ibero-American Institute and the German Overseas Institute. Numerous discussions and meetings with other institutes which also concern themselves with a particular field or region , as well as with the most important libraries on these fields led to the establishment of regional working groups for the purpose of coordinating documentation and research work. The rights and obligations are laid down in the Articles of Association drafted by the participating institutions.

At the same time a descriptor list—the so-called "Developing Countries Thesaurus"—was prepared with a view to the introduction of electronic data processing to serve as a common linguistic instrument, and preparations were made to harmonize the thesaurus with the Aligned Descriptor List of the OECD Development Centre.

In 1967, after the two initial phases, the documentation centre of the German Foundation entered into its third phase, during which its work was to be intensified. In the technical field this meant finding the best data processing method applicable to all fields of documentation, coordinating it according to contents with the various documentation centres in keeping with the requirements, and integrating it into other national and international documentation agencies of clearinghouse type within the framework of a coordinated documentation and information network. In this way an exchange of documentation and information between industrialized and developing countries is to be ensured.

What balance can we draw at the early stage of this third phase (from 1967 onward)? More than one milliard dollars of development aid are wasted annually in the world, due to

material which is not being used or to duplication of work. As the number of publications increases each year, one may also speak of a knowledge explosion. In how far has the German Foundation been able to fulfil the task assigned to it by the Federal Ministry of Economic Cooperation, that of organizing a Central Documentation Centre and elaborating practicable methods for a developing countries documentation and its coordination? The following apparatus had been established by the autumn of 1967:

1. Central Files

The Central Files contain

a) about 4.000 German projects, with most important data listed according to countries (confidential);
b) about 350 German institutions, the majority of which are contained in the Handbook of Development Aid of the NOMOS Publishing House and "Development Aid of Non-governmental Non-profit Organizations," a directory published by the Organization for Economic Cooperation and Development (OECD) and the International Council for Voluntary Agencies (ICVA);
c) about 3.000 German experts on questions of development policy;
d) about 3.000 research studies and expert reports;
e) about 3.200 addresses of former participants in seminars and courses from developing countries;
f) about 1.100 events on problems of development policy, held annually in Germany and abroad.

2. Specialized library and archives

The library with its stock of some 5.000 volumes contains important German literature on development aid. It is the ultimate goal to have a complete collection on this subject.

In addition, there are reference books and standard works as well as specialized foreign literature on technical assistance and the subject of education. All volumes are registered, given descriptors according to the thesaurus system and evaluated. The material is then prepared for electronic data processing.

The archives contain an evaluated collection of periodicals and of clippings from 21 important German and foreign newspapers as well as from 105 news services on development policy subject matter. In addition, proceedings, travel reports, prospectuses, programmes, annual reports, etc. are collected. This material is stored according to descriptors under the headings donor countries, recipient countries, development aid institutions (some 1.000 German, foreign and international institutes) and technical fields.

3. Coordinated cooperation

Coordinated cooperation has been achieved by a system of regional working groups of the documentation centres. We cooperate with 10 institutes for Africa and Asia, 9 institutes for the Near East and 17 institutes for Latin America. As a supplementary measure additional specialized working groups, for example in the fields of law, tropical medicine, agriculture, transport, pedagogics, etc., are to be established. These working groups are being planned on a medium term basis and are to be loosely connected with the regional working group system. Another form of coordinated cooperation is the "developing countries thesaurus," compiled jointly for documentation and information purposes, which is used by all institutions participating in the working groups and which may serve as a model for similar projects. Furthermore efforts are being made to harmonize both on a national and international basis the measures initiated

by means of bilateral agreements with other national and international documentation centres (OECD, European Community, FAO, ILO, etc.) and on a multilateral basis with the OECD Development Centre and the Fédération Internationale de Documentation, thus contributing to the extension of this worldwide network.

An initial period of about three to four years should be reckoned with when planning to expand such documentation centres. Existing facilities should be extended pragmatically step by step, accompanied by increasing systematization and rationalization and taking into account the need of the users.

During this initial period one should not expect perfect results, on the contrary, one should have the courage to be imperfect and rather place emphasis on gradual improvement in order to keep in line with the degree of urgency of demand. During the transitional period aiming at consolidation, which will also last at least two to three years, it is of great importance to test, improve or possibly reduce the new apparatus and perhaps develop new models.

As to the tasks of the Documentation Centre of the German Foundation for Developing Countries, the phase of intensification beginning now should embrace the following activities:

1. Update and complete the Central Files in collaboration with competent private and government agencies:
   a) In addition to government-supported German projects, all those projects are to be registered which pertain to a region in which German development aid is being given, in order to obtain a true picture of the work of our partner countries;

b) Obtain special lists from certain institutions, for example, offices for employment overseas, documentation agencies and research institutes, the Handbook for Development Aid, OECD/ICVA Directory of Non-governmental Non-profit Organizations in the field of development aid, etc.;
c) Regular registration and publication of research studies and projects as well as expert reports;
d) File of relevant events in the field of development policy.

2. Preparation of a synopsis as supplement to the list of libraries, archives and specialized collections of material pertaining to development policy. Such a synopsis will facilitate an efficient division of labour (collection fields, uniform registration and medium, possibilities of adjustment to other systems, evaluating according to uniform guidelines).
3. Checking with the documentation clearinghouses during their initial phases, synchronization of data retrieval by means of effective, time- and cost-saving documentation techniques and increasingly automated documentation. Prevention of misunderstandings, joint elimination of difficulties and linking technical and regional aspects of enquiries.

In close collaboration with the Institute for Documentation and the Centre for Mechanized Documentation the effort must be made to obtain optimum equipment and staff in accordance with the increasing field of activities.

4. Adjustment of the thesaurus for purposes of analytical work by means of supplementation and intensification in the specialized and regional fields; constant coordination with the Aligned Descriptor List, which represents an international instrument of common language (multi-

lingual version); use of decimal classification system in order to permit exchange with other documentation centres not yet working along the thesaurus principle.

5. The staff entrusted with these tasks must be so schooled in their documentary, informatory and technical work as to enable them to supply relevant material to the user quickly and efficiently.
6. The German Foundation for Developing Countries/Documentation Branch will endeavour to fulfil its clearing-house function in the field of development aid documentation and make an increased effort in the months to come to win over those politicians, researchers and administrators who have not yet recognized that a modern documentation and information system is an essential instrument of guidance and decision-making. In the last analysis the development of the countries of Africa, Asia and Latin America depends on the efficient functioning of this system.
7. The senior personnel of national documentation and information centres must prepare themselves to establishing national documentation networks in less developed regions. It is hoped that the results of this Conference and future conferences will help our partner countries in the field of documentation to fulfil this rewarding task.

Recommendations

Considering that, on the one hand, the general economic and social development provides the basis for the establishment and promotion of library and documentation services, but, on the other hand, well-established and developed library and documentation services contribute directly to the economic and social development of a country, the Symposium recommends:

1. Analysis of Documentation Needs

UNESCO should be asked to promote in one African, one Asian and one Latin American developing country an analysis of documentation needs for the establishment of national documentation centres or networks. This analysis should be published and widely circulated as an example for investigation of documentation needs in other developing countries.

2. Tasks of a National Centre

National Centres for Bibliography and Documentation should be established in order to fulfill the following central functions:

- organization, coordination and development of a national information system;
- establishment of central catalogues referring to knowledge available in the country;
- coordination of the acquisition of documents as sources of information avoiding unnecessary duplications and making better use of financial resources available for this purpose;
- coordination of training in librarianship and documentation;
- advising on matters of national information policy;
- provision of auxiliary technical services.

3. Reprographic Services

In order to cope with the difficulties in the acquisition and dissemination of documents and information, developing countries should organize central reprographic services. The Central Reprographic Service should be set up within the National Centre for Bibliography and Documentation. According to recommendations of UNESCO and subject

to local variation costs of such a service amount to 25.000 - 50.000 US $ per annum. Training of personnel in reprography should precede the establishment of such a service.

4. Translation Services

A Central Register of Translations and Translators should be organized within the National Centre for Bibliography and Documentation covering the translations started, done or available in the country. The Central Register should be supplied with international and foreign indexes of translations and should assist interested users in locating translations in the country and abroad. According to local needs the Central Register may be supplemented with a Translation Office.

The National Translation Service should cooperate with regional and international translation centres.

5. Training

The training of librarians and documentalists, of teachers and of users of documentation should constitute an important aspect of development aid policy. It is necessary to improve the professional status of librarians and documentalists in developing countries which will allow to attract sufficiently qualified people to engage in library and documentation activities.

The FID should establish practical examples for projects in the training field in order to be able to make suggestions to the competent authorities and foundations. The developing countries should establish the respective positions for teaching personnel and should ensure scholarships for documentalists and librarians. International and national

institutions offering scholarships as part of their technical assistance programmes should offer scholarships for documentalists and librarians as it has been done for other professionals and specialists.

Special attention should be given to the training of users of information facilities (short introductory courses to civil servants, engineers, scientists and university students). Students from developing countries studying in developed countries should be given lectures on documentation.

6. Contact Assistance

It is particularly important in developing countries to organize documentation activities in such a way that the documentation services establish close and permanent contact with public and private users. Documentalists should constantly adapt their operating methods to the actual needs of the users. The FID should encourage the publishing of guidelines on user service methods.

7. Legal Deposit Law

In order to maintain a central record of all publications produced in a country, and to encourage the authors of a country to foster the growth of the publishing industry, it is highly desirable to introduce the legal deposit of publications. A Legal Deposit Law assigns copyright to a publisher and, in return, requires that copies of the publications be deposited in the National Library. UNESCO and IFLA should advise government in the preparations of the Legal Deposit Law.

8. Regional Cooperation

The establishment of regional commissions of the FID is highly desirable, because these international organizations may extensively promote contacts between documentation services of countries belonging to the same region and may thereby strongly support the development of national documentation systems.

9. Directories

Considering that many developing countries do not know where, when and how to ask for technical assistance it is desirable that directories, listing institutions active in the different fields of development aid, should be established in each of the aid-giving countries. The OECD Development Centre should help in the publication of such directories and should also publish bibliographies on the subject.

10. Literature on Documentation

UNESCO and other international organizations should be encouraged to improve and to broaden the circulation and distribution of working documents on the problems of documentation in developing countries and should be asked to accelerate publication of materials on this topic.

11. Documentation to be Included in Development Plans

As without an organized documentation system embracing the various sectors of the national economy national development programmes are lacking a solid information base, government authorities responsible for the planning should provide for the development of a coordinated national information system considering, within the total budget of

the national development programme, a percentage for the establishment of such a system which assures financial funds and qualified personnel. FID/DC should work out general recommendations.

12. Development Aid for Literature Supply

As in many developing countries the procurement of literature proves very difficult for financial as well as for currency reasons, the assistance in the supply of libraries and documentation centres with literature should be part of the development aid. Agreements for the international exchange of literature should be planned, too.

It is desirable to give the national institution which is appointed for that purpose by the government charge accounts out of development funds for procurement of microcopies and photocopies. The costs by fulfilling such requests by libraries in developed countries should be met by the development agency administering the development aid.

Programme

Tuesday, 28 November

9 a.m.	Opening address, presentation of delegates Introduction to the programme
10 a.m.	"The Role of the Institutions of Developing Countries in the Planning, Organization and Development of Documentation— General Introduction" Dr. S. Balázs, Hungary
11 a.m.	"National Library and National Bibliography" B. El Fani, Tunisia Discussion "Library Development in Nigeria" P. Rappaport
1 p.m.	Lunch
2 p.m.	Steering Committee session
3 p.m.	"Documentation Centres at Scientific Institutions in Developing Countries" Dr. T. Gladstein, Israel Discussion
7 p.m.	Reception at the Beethoven-Halle
10 p.m.	Return to Park-Hotel

Wednesday, 29 November

9 a.m.	"Agriculture: Research and Development Institutes, Associations"
	C. Swabey, Great Britain
	Discussion
11 a.m.	"Policy Planning for Technical Information in Industry"
	Dr. H. Wooster, USA
	Discussion
1 p.m.	Lunch
2 p.m.	Steering Committee session
3 p.m.	Meeting of FID/DC, with guests, Part I
6. 30 p.m.	Dinner

Thursday, 30 November

9 a.m.	"The Role of the State and of the Government Agencies in Developing Countries"
	Z. Kosior, W. Wojciechowska, Poland
9.30 a.m.	"The Role of a National Information Clearing House for Development Aid"
	E.-J. Freiherr von Ledebur, Germany
10 a.m.	Discussion
11.30 a.m.	General evaluation of the Symposium
1 p.m.	Lunch
2 p.m.	Steering Committee session
3 p.m.	Meeting of FID/DC, with guests, Part II
6.30 p.m.	Dinner

List of Participants

ARNTZ, Prof. Dr. Helmut
Vice-President of FID
Kennedyallee 91-103
532 Bad Godesberg, Germany

BALÁZS, Dr. Sándor
FID/DC: Developing Countries Secretariat
Hungarian Central Technical Library and
Documentation Centre
Reviczky u. 6
Budapest VIII, Hungary

BRODMEIER, Dr. Beate
German Foundation for Developing Countries
Blücherstrasse 16
53 Bonn, Germany

CREMER, Dr. Martin
Director
Institute for Documentation
Vogtstrasse 50
6 Frankfurt-Main, Germany

CUYVERS, Dr. J. B.
Secretary General
Centre for African Social and Economic
Documentation (CIDESA)
42, rue du Commerce
Brussels 4, Belgium

DONN, Rostislaw
Head of Division
External Relations and Transfers
of Experience
OECD Development Centre
91, boulevard Exelmans
Paris 16e, France

DRAGUHN, Werner
Dipl.-Volkswirt
Institute of Asian Affairs
Alsterglacis 3
2 Hamburg 36, Germany

DURGELOH, Dr. Heinz
The German Overseas Institute
Ferdinandstrasse 6
2 Hamburg 1, Germany

EL FANI, Béchir
Conseiller de la FID
Secrétariat d'Etat aux Affaires Culturelles
et à l'Information
Centre de techniques bibliographiques
44, rue Charles de Gaulle
Tunis, Tunisia

GEHRKE, Dr. Ulrich
German Orient Institute
Mittelweg 151
2 Hamburg 13, Germany

GLADSTEIN, Dr. T.
Director
Central Library Technion
Israel Institute of Technology
Technion City
Haifa, Israel

GREIFF, Dr. Martin
Federal Ministry for Economic Cooperation
Kaiserstrasse 185-201
53 Bonn, Germany

JOHNSON de VODANOVIC, Betty
Assistant Director
CENID - Secretary FID/CLA
Monidar 673, 82 piso
Santiago, Chile

KEREN, Carel
Director
Centre of Scientific and Technological
Information
84 Hachashmonaimstreet
Tel Aviv, Israel

LASSO de la VEGA, Dr. Javier
Instituto Nacional de Racionalización
del Trabajo
Serrano 150
Madrid 6, Spain

LÁZÁR, Dr. Péter
Chairman
FID/DC Committee for Developing Countries
Reviczky u. 6
B.POB 12
Budapest VIII, Hungary

LECHMANN, Dr. Heinz
Regierungsdirektor
Federal Ministry for Scientific Research
Heussallee 2-10
53 Bonn, Germany

Frhr. v. LEDEBUR, Ernst-Joachim
German Foundation for Developing Countries
Blücherstrasse 16
53 Bonn, Germany

PETER, Hanna
Institute of African Research
Schleusenbrücke 1
2 Hamburg 36, Germany

RAPPAPORT, Philip
Library Adviser
National Library of Nigeria
4 Wesley Street
P.M.B. 12626
Lagos, Nigeria

RASMUSSEN, Dr. Detlef
Bibliotheksoberrat
Federal Ministry of Foreign Affairs
Adenauerallee 99-103
53 Bonn, Germany

RICHTER, Harald
Friedrich Naumann Foundation
Schillerstrasse 9
532 Bad Godesberg, Germany

ROMINSKI, Dietrich
Insitute of Latinamerican Studies
Alsterglacis 8
2 Hamburg 36, Germany

ROREVAAR, Dr.
Deputy Librarian of the Library of the
Peace Palace
Den Haag, Netherlands

SCHOTT, Dr. Otto von
Oberregierungsrat
Federal Ministry for Economic Cooperation
Kaiserstrasse 185-201
53 Bonn, Germany

STEFÁNIK, Dr. Vladimir
Slovakian Commission for Technics
Stefanovicova 3
Bratislava, CSSR

SVIRIDOV, Dr. Felix A.
Secretary General, FID
7 Hofweg
Den Haag, Netherlands

SWABEY, Christopher
Director
Commonwealth Forestry Bureau
at Commonwealth Forestry Institute
South Parks Road
Oxford, Great Britain

WESSELING, J. C. G.
Ministry of Foreign Affairs
Plein 23
Den Haag, Netherlands

WOOSTER, Dr. Harold
Air Force Office of
Scientific Research
1400 Wilson Boulevard
Arlington, Virginia 22209, USA

ZIOCK, Hermann
Federal Ministry for Economic Cooperation
Kaiserstrasse 185-201
53 Bonn, Germany

Staff of the Meeting

ARNTZ, Prof. Dr. Helmut Vice-President of FID	Chairman: 29 November
DANCKWORTT, Dr. Dieter Head, Documentation and Conference Division, German Foundation for Developing Countries	Chairman: 30 November
LÁZÁR, Dr. Péter Vice-President of FID Chairman, FID/DC	Chairman: 28 November
BALÁZS, Dr. Sándor Secretary, FID/DC	Rapporteur
BLANCK, Gertrud Conferences Branch, Documentation and Conferences Division, German Foundation for Developing Countries	Organization
HAMMER, Gert German Society for Documentation	Assistant to Prof. Arntz
PLETTENBERG, Sigrid Gräfin von German Society for Documentation	Assistant to Prof. Arntz
RÜSCH, Marguerite German Society for Documentation	Secretariat
BRUNNER, Helga	Interpreter
DESTOUCHES, Dr. Philippe	Interpreter
TIMEWELL-HOYER, Helga	Interpreter
VILETTE, Irmgard	Interpreter